

JOHNS HOPKINS HOS.

MAY 9 1925

**THE BOSTON
Medical and Surgical
JOURNAL**

VOLUME 192

MAY 7, 1925

NUMBER 19

ORIGINAL ARTICLES

ARTERIAL HYPERTENSION*

BY WILLIAM D. REID, M.D., BOSTON, MASS.

PART I

In view of the large number of persons affected, the frequent association of cerebral, cardiac, or renal complications, and the untimely death of many of those afflicted, the subject of arterial hypertension is rightly classed as one of the important problems of the practice of medicine. That the medical profession realizes the above is evidenced by the large volume of the literature upon high blood pressure. Much study has been given the problem in the past and at present many laboratories and clinics are actively engaged in further investigation. It seems justifiable to assert that no general agreement exists as to the exact nature of conditions of elevated blood pressure; in fact, confusion reigns and the problem awaits solution. It is the purpose of this paper to discuss certain aspects of arterial hypertension and to advance some conceptions which it is hoped may be of value to those required to treat patients affected by the condition in which abnormal elevation of the pressure of the blood is a feature.

DEFINITION

The condition under consideration in this paper may, perhaps, be sufficiently defined as that in which the essential feature is a persistent elevation of the blood pressure. It may be that we are dealing with a group of conditions, three of which are often sufficiently distinct to permit recognition. The first, for which the term "chronic vascular hypertension" seems satisfactory, has been described in the literature under other names, namely, essential hypertension, primary hypertension, Allbutt's hypotension, chronic hypertensive cardiovascular disease, arteriosclerosis, etc. The second form, "chronic hypertension with diabetes," differs little save in a disturbance of the sugar metabolism. The third type is satisfactorily labelled, it would appear, "chronic hypertension with nephritis." Chronic interstitial nephritis and cardiorenal disease were familiar titles in the past.

For the purposes of this paper I shall resist the temptation to break up the group, if such it

is, of conditions in which high blood pressure obtains. They should, however, be sharply separated from arteriosclerosis, especially that found in elderly persons and associated with the various changes characteristic of old age. In such senile or involuntary arteriosclerosis high blood pressure is not a feature.

RELATION TO ARTERIOSCLEROSIS AND NEPHRITIS

In the past arterial hypertension was most frequently attributed to arteriosclerosis or nephritis, or both. It may clarify the situation to state why, in view of our present knowledge, neither of the above are acceptable.

Chronic high blood pressure may occur before the appearance of arteriosclerotic changes, as proven repeatedly by postmortem examination. Arteriosclerotic changes do, it is true, appear in time. Practically all elderly persons, i. e., those sixty or more years of age, have arteriosclerosis, often quite marked; in the majority of these individuals, however, the blood pressure is not significantly elevated. It is possible that the hypertension and the arteriosclerotic changes in the vessels are due to the same primary cause or that the elevated blood pressure itself produces the vascular lesions. Moschowitz¹ cites the more important evidences supporting the conception that the hypertension may bring about the anatomic changes. These are worthy of quoting.

1. Arteriosclerosis is most prominent in those portions of the vascular system in which stress is greatest, at bifurcations and at points of narrowing whether normal or abnormal.
2. In cases of congenital stenosis of the isthmus of the aorta, there is always a profound sclerosis of the proximal part of the aorta and at the site of the stenosis, while the peripheral portions of the aorta show little or no sclerosis. In these cases most observers have noted also a marked sclerosis and tortuosity of the vessels that maintain the collateral circulation, namely, the internal mammary, the scapular and the vertebral arteries. The same is true in pulmonary stenosis.
3. Marchand² found no arteriosclerosis in the arteries of an extremity paralyzed because of poliomyelitis, when there

*From the Department of Medicine, Boston University, School of Medicine.

were marked changes in the healthy limb. 4. The endocardium in the left auricle is thickened excessively in mitral stenosis. 5. The endocardial and subendoocardial thickenings of the left ventricle in patients with hypertension have been recently described again by Hertel⁸. 6. Arteriosclerosis is usually more prominent in those vessels which are unsupported, for instance, the basal arteries of the brain, the coronary and the temporal arteries, and the aorta; but it is less prominent in vessels that are supported by muscular tissue, as in the extremities. 7. Harvey¹ produced arteriosclerosis in the aorta by digital compression for many days, and Klotz² obtained similar results by suspending rabbits in the inverted position for a prolonged period. 8. Carrel³ found that a section of vein sutured between the divided ends of an artery rapidly showed sclerotic changes. In this instance every factor except the effect of pressure can be excluded. 10. Observations on arteriosclerosis of the lesser circulation prove the effect of increased pressure in bringing about an arteriosclerosis. It is remarkable that arteriosclerosis of the pulmonary arteries occurs only in those conditions in which an increased intrapulmonary tension is obviously present, namely, emphysema and, especially, mitral stenosis. My studies of the pulmonary vessels in patients having mitral disease reveal a striking disproportion between the profound sclerosis of the pulmonary vessels and the relatively slight sclerosis in the aorta. In these patients, the smaller vessels and the capillaries of the alveoli reveal interesting changes which I shall discuss more fully. 11. Arteriosclerosis of the retinal vessels occurs only in those conditions in which a hypertension is or has been present. 12. Certain negative evidences may be set forth: (a) Sclerosis is relatively absent in the veins in which pressures are low. On the other hand, in veins in which the pressure is increased, as in varicosities or in an arteriovenous aneurysm, sclerosis is present. (b) Extensive or profound arteriosclerosis is infrequent in patients who have hypotonia, as tuberculosi. (c) Arteriosclerosis, as a rule, is less profound in women than in men. These evidences certainly show that hypertension should be considered as a factor, perhaps the most important, in producing arteriosclerosis."

The presence of nephritis in many patients dying of hypertension led many to believe that the renal lesions were the cause of the elevation of the blood pressure. Nevertheless, there is an almost constant lack of proportion between the extent of the changes in the kidney and the degree of hypertension. There are numerous reports of studies of renal function showing the latter to be little if any diminished in persons affected by hypertension. Necropsy studies disclose the characteristic alterations in the kidneys to be of the nature of sclerosis of the blood vessels and not extensive save in cases of

long duration. Allbutt⁴ has thoroughly presented the evidence that the renal lesions follow rather than antedate the increase in the blood pressure. The opinion that hypertension is not induced by damage to the kidneys obtains support from the recent experiments of Anderson⁵ who finds that removal of 70 per cent of the kidney tissue in rabbits does not produce hypertension even when prolonged renal insufficiency results. This observer infers that the atrophy of renal tissue in chronic glomerulonephritis is not the cause of the accompanying hypertension.

SOME OTHER EXPLANATIONS

Arterial hypertension has been explained as due to an intoxication from *excessive protein in the diet*, and in accordance with this conception the low-protein diet has been a widely used method of treatment. More recently this belief has been shaken by such work as that of Strouse and Kelman⁶ who report that in patients affected by arterial hypertension no increase in the nonprotein nitrogen or urea nitrogen of the blood was found to follow protein feeding up to 150 gm. daily. In cases of frank progressive nephritis with hypertension, a diminution of protein intake, sufficiently great to lower the figures for blood nonprotein nitrogen and urea, did not cause a lowering of the blood pressure. Of interest in the question of the relation of diets rich in protein to the production of arterial hypertension are the statistics of the Life Extension Institute¹⁰. They are: 16 per cent high protein feeders in the hypertensive group, and 29 per cent high protein feeders in those with a normal blood pressure. Also 30 per cent of those with hypertension used tobacco to excess, while 37 per cent did so among patients with a normal pressure. These figures were arrived at from an analysis of 1021 cases of arterial hypertension, and 13,308 with normal blood pressure.

The metabolism of sodium chloride has also been considered important. The influence of such an authority as F. M. Allen¹¹ has strengthened the belief that common salt was a factor, not necessarily the primary one, in the production of high blood pressure and many cases have been treated by a low salt diet (2 gm. per day). This conception also, however, has lost ground. One notes such reports as that of Mosenthal and Short¹², who state, "There is no definite evidence in the literature that sodium chloride raises blood pressure. The level of the blood chlorides bears no relation to blood pressure. In a series of experimental observations the ingestion of 10 gm. of salt failed to raise the blood pressure in cases of hypertension."

That hypertension is due to the action of a *toxin* carried round in the circulation is deemed unsatisfactory by Moschowitz¹³ on the ground that the vessels of the lesser circulation are spared. Major and Stephenson¹⁴ have sought

for some protein body, a product of metabolism, which, if produced in excess or retained in the body by imperfect elimination, may be a direct cause of hypertension. In their experiments on dogs the guanidin bases were found to have a marked pressor effect. Tyramine¹⁵, a substance derived from tyrosin, one of the amino-acids, has an epinephrin-like effect, causing a marked vascular spasm with rise of blood pressure. The significance of these products of metabolism will be discussed later in this paper.

Heredity has been advocated as the dominant predisposing factor. Osler's¹⁶ reference to the quality of the tubing with which the individual is endowed has been considered particularly apt. In considering the prevention of arterial hypertension Barker¹⁷ states that the individual should first "get himself well born without constitutional inferiorities." Christian¹⁸, Barach¹⁹, Wiseman²⁰, and O'Hare, Walker and Vickers²¹ all stress the importance of heredity. On the other hand, Moschowitz²² believes that the real reason that arterial hypertension is prone to appear in families is that the individuals are exposed to the same environment.

Barach²³ and O'Hare, Walker and Vickers²⁴, and others point out that study of the past history of patients affected by arterial hypertension discloses that in youth they suffered from the condition known as effort syndrome: irritable heart. Alvarez²⁵ speaks of cyanotic hands as a valuable sign of the hypertensive diathesis. Because of the symptoms associated with their effort syndrome in the first three decades of life these persons are apt to find escape from the physical hardships of life by devoting themselves to mental work. This agrees with my experience and is an important observation.

It has been thought that the race of the individuals was a factor of importance in the occurrence of high blood pressure states. Cadbury²⁶ has found that hypertension as a pathological condition in the Chinese is very unusual. An interesting research was reported by Hunter²⁷ on the blood pressure findings recorded on persons examined for life insurance in various lands. Hunter finds that the blood pressure obtaining among Chinese, Japanese, Hindus, and Filipinos living in their native country is distinctly lower than among Americans in the United States. Officers of the United States Army serving in the Philippines show a lower pressure than that found in Americans residing in America. Figures were obtainable for Chinese and Japanese residing in the United States and disclosed that the blood pressure had reached practically the American level, in fact it did not differ by more than 2 mm. from the blood pressure of Americans. Hunter concludes that blood pressure is not affected by race, but is practically the same throughout the world *under like conditions*. He gives chief importance to the diet, especially to the

amount of meat eaten. I shall return to the matter of diet at a later point in this paper.

NORMAL BLOOD PRESSURE

The attempt to solve the problem of arterial hypertension by study of the lesions found in the patients subjected to postmortem examination has been unsuccessful. Important information, it is true, has been obtained but it seems fair to assert that too great a dependence upon pathology has been instrumental in certain misconceptions, namely, in giving rise to the belief that the hypertension was due to the accompanying arteriosclerosis and nephritis, lesions which only comparatively recently are being given the role of complications rather than that of causes. Arterial hypertension is a matter of function; it is not present after death. Therefore, it behoves us to see what information physiology will give.

In discussing the flow of liquid through rigid tubes Burton-Opitz²⁸ points out that if the initial energy is not exerted continuously the outflow will be intermittent. In contrast to this, in elastic tubes (the arteries) the property of elasticity by means of which the walls of the tube (artery) endeavor to regain their original position is of greatest importance to the agent (the heart) producing the pressure, because it helps to preserve a continuous flow even when the latter is at rest. In an elastic tube a constriction of its outlet lessens the rate at which the pressure falls between the intermittent injections of fluid. In other words the systolic pressure depends upon the heart while that of diastole is determined by the peripheral resistance. It is scarcely necessary to state, nevertheless, as pointed out by Bayliss²⁹, that the peripheral resistance must not be considered to be the cause of the blood pressure, which is due to the energy produced by the muscular contractions of the heart.

As a result of his experiments Tulgan³⁰ holds that the height of the blood pressure is partly automatic and partly reflex. Thus if all the cardiac nerves are severed the blood pressure does not fall to zero but is maintained at a certain level which is not the same as in the same animal with the cardiac nerves intact. The nerve centers concerned with the regulation of the cardio-vascular mechanism are situated in the medulla and have a wide relation to all parts of the body including the heart itself. To the heart go efferent fibers which carry impulses from the central mechanism which increase or diminish its rate, and to the blood vessels go fibers which may alter their caliber and thus change blood pressure. In the words of this observer, "The responses of the cardio-vascular system seem to be guided by two antagonistic mechanisms, a cardio-inhibitory nervous mechanism and a cardio-accelerator nervous mechanism, both of which through the algebraic summation of their effects act in the best inter-

ests of the organism under ordinary conditions. The first mechanism is concerned with preventing the heart from overwork and in giving the heart musculature a sufficient period for its metabolic repair. The second mechanism is intimately concerned with the maintenance of a certain level of blood pressure which is to the best interests of the organism."

OBSERVATIONS ON ARTERIAL HYPERTENSION

The level of the blood pressure is often very unstable in arterial hypertension. Thus, O'Hare³¹ has published records of marked increase in the pressure level immediately following nervous influences.

During sleep the blood pressure was found by Müller³² to fall in patients with a normal daytime pressure level and in those with arterial hypertension, and he holds that the excess of the pressure during the waking hours over that existing during slumber must be conditioned mainly by merely functional variations in the tonus of the arteries—the expression of vasoconstrictor instability. Blume³³ has confirmed this while Fahr³⁴ states that in early cases of arterial hypertension the pressure drops to nearly normal during the night, but later on it remains above normal during the sleeping hours also.

The blood pressure relationships are not always the same. Foster³⁵, one of the clearest writers on the subject, has described the cases as falling into three groups according to the blood pressure findings, as follows: (1) Elevation in both systolic and diastolic phases, (2) elevation in systolic, with the diastolic normal or but slightly elevated, and (3) elevation in the diastolic and none in that of systole. This latter combination is met with but occasionally. In discussing the above types Foster writes, "This indicates that there are two main factors in operation in producing abnormal elevations in blood pressure of all types. These factors are, first, increased peripheral resistance dependent on vasoconstriction induced primarily through the central nervous system. The second factor is increased heart output. An increased cardiac output will first of all increase the systolic blood pressure and only secondarily increase the diastolic, so that cases presenting the combination of high systolic and normal diastolic pressure fall into this group. When the systolic and diastolic are both elevated we have a combination of two factors, increased heart output and a narrowing of the peripheral field of circulation due to vasoconstrictor influences, These physiologic considerations are sufficient to indicate the futility of attempting to treat all cases of hypertension as though of common origin." Of this more, anon.

Numerous observers have come to the conclusion that in arterial hypertension the tonus of the muscle fibers of the arteriolar walls is increased; there is a spastic element even when

organic lesions of the arterioles are present³⁶. In my opinion arterial hypertension may be considered a condition in which the balance of nervous control of the blood pressure is disturbed, namely, either a stimulation of the sympathetic nerves or a lessening of the inhibitory influence of the vagus, or both. In other words hypertension is an expression of abnormal activity of the vagus or sympathetic nerves, or both.

SUMMARY

There is no general agreement as to the exact nature of arterial hypertension.

The condition is defined as that in which the essential feature is a persistent elevation of the blood pressure.

Arteriosclerosis and nephritis are held to be associated conditions or complications rather than causes.

Some of the other alleged causes are cited.

Physiologic aspects of normal blood pressure are discussed briefly.

Certain observations on arterial hypertension are presented.

It is suggested that hypertension results from a disturbance of the balance of nervous mechanisms controlling the pressure of the blood.

PART II

RELATION TO CALCIUM METABOLISM

In the preceding part of this paper arterial hypertension is considered to be due to a disturbance of the balance of the nervous control of the blood pressure, namely, a lessening of the inhibitory action of the vagus nerve or a stimulation of the sympathetic fibers, or both. The question very naturally arises of "Why?" What is it, to use a metaphor, that has prepared the soil?

The explanations already suggested, a number of which I have mentioned, appear unsatisfactory. The cause should be something acting over a long period and affecting persons of different types and races. It should be an agent which affects certain parts of the nervous system, i. e., the vagus and the sympathetic nerves. A faulty diet, especially one deficient in calcium, satisfies the above criteria.

OBSERVATIONS ON CALCIUM

The subject of calcium metabolism is, to say the least, complex. It may be helpful to enumerate some of the findings recorded by various observers. Bayliss³⁷ notes that according to Busquet and Pachon (1908) when the action of the vagus nerve on the frog's heart has been stopped by perfusion with pure sodium chlorid solution, as shown by Howell (1906), the addition of calcium chlorid in extremely small amount is sufficient to restore the inhibitory action of the vagus nerve. He also states that Clark (1915) has shown that digitoxin (the

active principle of foxglove) is inactive without calcium. It is known that digitalis acts primarily through the vagus nerve. Bayliss and others assert that calcium will prevent the formation of edema from various causes, and state that the action appears to be on the permeability of the vessel walls, increasing the "consistency of the colloidal systems of the cell membranes."

The disturbance of calcium metabolism in rickets has been extensively studied. In experimental rickets in rats, induced by a diet in which among other factors the calcium was low, Jackson and Carleton¹⁰ found that the heart increased in weight sometimes as much as 20.1 per cent. They state that Voit¹¹, who fed puppies on a calcium poor diet, also observed cardiac hypertrophy, but it has not been noted in human rickets. It has been suggested¹² that the essential cause of hypertrophy of the heart muscle is stimuli received from the sympathetic nerve fibers, which are augmentative in effect. On the other hand, McCollom¹³ writes, "We have not noted any heart changes in animals fed diets deficient in calcium, nor have we noted hypertrophy and arteriosclerotic changes."

Calcium metabolism, as shown by observations on rickets and elsewhere, is much influenced by exposure to sunlight or the ultraviolet rays, by the ingestion of cod liver oil, and by the ratio of phosphorus to the calcium in the diet. A complete understanding of the metabolism of calcium requires consideration of all these factors.

It has been shown by Frölich and Chiari¹⁴ that the excitability of the sympathetic nervous system and of the cerebrospinal nerve endings is markedly augmented by diminishing the lime content of the body; substances administered to an animal or formed in its own metabolism which deprive the body of lime—e. g., oxalic acid—rendering it abnormally susceptible to drugs exerting such pharmacological actions. In line with this is the observation of Major¹⁵ that in arterial hypertension experimentally produced in dogs by the injection of guanidin compounds, a 10 per cent solution of calcium chloride, potassium chloride and ammonium chloride in doses of 0.1 gm. per kilogram, when slowly administered intravenously, produced a prompt and persistent fall of high blood pressure to a normal level. In some of the experimental work of the rhinologists calcium has been found to exert a similar removal of the effects of guanidin compounds.

THE THEORY

Without wearying the reader with further reference to the literature a theory as to the cause of arterial hypertension will be suggested. It is that a reduction of the calcium in the body removes or weakens the inhibitory influence of the vagus nerve and then the sympathetic nerve stimuli which are known to augment or increase

blood pressure are unopposed. Then it is that substances, such as the guanidin compounds studied by Major, should readily be able to cause a higher blood pressure by stimulating the relatively unopposed sympathetic nervous system, which may, perhaps, also be in a hypersensitive condition. As urged in an earlier part of this paper arterial hypertension results from stimuli emanating from the sympathetic nervous system.

DISCUSSION

Let us see if this theory will stand up when tested by some of the facts known about hypertension. Sir James Barr¹⁶, I note, has an opposite view; in fact, he writes, "Decalcifying agents are very useful if the pressure be raised." However, his paper contains but a few stray sentences pertaining to calcium and does little to weaken my belief that an insufficiency in the lime supply serves to "prepare the soil" in arterial hypertension. Comstock¹⁷, among other details, advises a diet that will "secure an abundance of the alkaline and mineral salts," but since he does not clearly mention calcium I feel that his paper can hardly be said to recognize the importance of calcium deficiency in arterial hypertension.

According to Foster¹⁸ 50 per cent of the patients affected by arterial hypertension are overweight. Experience has shown that when such patients are dieted to cause a reduction in weight they are often favorably influenced as regards the high blood pressure. There is strong evidence that the most important factor in the production of obesity is a faulty diet, and therefore it may be asserted that in at least one half of those affected by arterial hypertension the diet is wrong. McCollom, in his book¹⁹, emphasizes that most of the civilized nations, and especially the people of this country, are eating too much sugars and other carbohydrates, i. e., fattening foods. There are factors, known and unknown, which tend to prevent some individuals from becoming overweight; their discussion will not be entered into here. It is still possible, therefore, that the diet may be faulty even in those cases of hypertension not associated with obesity. In diets to produce a reduction of weight it is common to make use of leafy vegetables and often milk, the very foods that are highest in calcium content. Thus, we see that the success frequently obtained by an anti-obesity diet may be associated with use of foods rich in calcium.

As said above, the average American diet is so low in milk and leafy vegetables that question arises as to why, if the theory of insufficient calcium be sound, even more persons are not affected by arterial hypertension. McCollom again suggests the answer by stating that there are few perfect experiments, as regards deficiency diets, in human beings; they take just enough of the various essentials to escape the

conditions which are readily produced in laboratory animals fed diets from which certain elements are excluded. Thus, one may not take milk as a beverage, but may get just enough in his coffee, tea, cocoa, etc., or with breakfast foods, in puddings and in other dishes in which the cook uses milk. Also calcium is present, though in smaller amount, in some other foods.

Arterial hypertension and diabetes mellitus are often associated. Joslin has shown us that the average diabetic is overweight and has been "exposed to too much good food." The present American habit of taking an excess of starches and sweets in the diet, which is also usually deficient in its calcium content, offers a reasonable explanation of the association of the triad, obesity, diabetes, and hypertension.

The typical patient affected by arterial hypertension is in a tense, so-called nervous state. McCollom⁴⁸ has noted that rats fed a diet poor in calcium become very wild and excitable and no longer can be picked up without danger of biting of one's hand; shortly after the calcium is returned to their diet these same animals become quiet and so tame that they can be picked up almost like pets. This observation has been repeated many times. There is a suggestion that perhaps the low calcium in the diet may similarly influence human beings. Perhaps "nervousness" should be looked upon not as a cause of the arterial hypertension but as a symptom associated with the heightened blood pressure and of similar causation.

Hypertrophy of the heart sooner or later ensues in cases of arterial hypertension. It has been suggested elsewhere⁴⁹ that the essential cause of hypertrophy of the heart muscle is the influence of stimuli received from the nervous system, probably mostly from the sympathetic which is augmentative in type. It has been pointed out in this paper that in arterial hypertension the sympathetic system is abnormally active.

Many cases of arterial hypertension are observed in women at the time of the menopause. In fact, Hopkins⁵⁰ held that it should be considered "as a distinct entity, the hypertension of the menopause, which one might style endocrinial hypertension." Also it is a well-known clinical fact that some cases of vascular hypertension are associated with disease of the thyroid gland. Recently Willius and Boothby⁵¹ have pointed out the particular type of thyroid condition, writing as follows, ". . . it is a rare occurrence to find in a case of exophthalmic goitre a diastolic pressure above 90, while in adenomatous goitre with hyperthyroidism it is not unusual to find readings distinctly above 100."

How does the above fit in with the theory of insufficient calcium? There is evidence that the endocrine glands are concerned in the metabolism of calcium. Weil⁵² writes of the thymus gland in the young, ". . . the function of

the thymus consists chiefly in promoting the assimilation of calcium salts by transforming them into substances which, like the colloid glycogen, will not readily diffuse out through the cell membrane." The same authority may be cited as holding that a connection between the ovarian glands and calcium may be deduced from clinical observations, and for the statement that the total calcium of the milk is reduced after thyroideectomy. A connection between the parathyroid glands and calcium, a reduction in the calcium in the blood having been found in tetany, has been credited by many but, as pointed out by Sonnenschein and Pearlman⁵³, the evidence can be disputed. Tisdale⁵⁴ has demonstrated experimentally that the cause of tetany is not the reduction of calcium alone, but occurs when there is an increased ratio of sodium to the calcium, i. e., the important factor is a change in the sodium calcium ratio. It does not seem wise to dwell further on the influence of the endocrine glands on the metabolism of calcium, which to me is a rather obscure subject, but it seems fair to state that a connection of some sort does exist. It should suffice to point out that the two conditions in which an association of arterial hypertension and glandular disturbance is observed, namely, in adenomatous goitre with hyperthyroidism and at the time of the menopause, there is an alteration of the normal physiology of the ductless glands.

Foster's⁵⁵ objections to the attempt to treat all cases of hypertension as of common origin do not seem convincing to me. We are dealing with multiple factors and the physiology of blood pressure is sufficiently complex to affect the systolic and diastolic levels differently in different individuals. If one keeps in mind the conception that the height of the systolic pressure is mainly dependent upon the output of the heart per beat and the strength of the contraction, while that of diastole is determined largely by the peripheral resistance, the variations in the pressure levels do not, in my opinion, appear incompatible with a common cause. The control of the blood pressure by the sympathetic nervous system acts both by way of the vasoconstrictor mechanism on the peripheral vessels and on the heart itself. For reasons easily understood and others perhaps, from the standpoint of our present knowledge, less clear, sometimes both heart and peripheral vessels are equally affected, while in others either may dominate the picture. Until the whole matter is more thoroughly understood it is better, perhaps, to refrain from too positive conclusions.

Allbutt⁵⁶ points out in the arteriosclerosis of old age, namely, that in which hypertension is not a feature, deposits of calcium in the vessels are abundant and early, they are tardy in cases of arterial hypertension. This observation appears to be in line with the conception that hypertension is induced by low calcium, as in

such cases there should be less calcium to deposit. Just why calcium is deposited in the vessels is, to be frank, not known to the writer; the reason therefor is not essential to this paper.

And finally I find that Kylin⁵⁷, who has been studying intensively high blood pressure, found a little lower blood calcium concentration in arterial hypertension than in his control cases. The normal is stated to vary from 10.8 to 12.0 mg. per 100 c.c. blood in men under 40 years of age, and in those over 40 years from 10.65 to 11.5 mg. In arterial hypertension Kylin's figures are 9.5 to 11 mg. per 100 c.c. blood. Also Addison⁵⁸ has recently reported success in the treatment of fourteen cases of hypertension following the administration of as much as 180 gr. of calcium chloride per day.

FINAL COMMENT

The theory advocated in this paper may be said in a nutshell to attribute the origin of arterial hypertension to a faulty diet. Park, in his recent discussion of rickets, a disease the causation of which is close to our problem since it concerns calcium metabolism, characterizes the diet of civilized man in these words: "The food which domesticated man eats is as far removed from the food furnished by nature than the conditions under which he lives from natural conditions. . . . Rickets is indeed a price paid by man for his abandonment of a life outdoors and a natural diet, for a life in houses and a diet of denatured food stuffs; it is a sign of the operation of the immutable law of nature that nothing out of accord with her shall flourish."⁵⁹ Just change the word "rickets" to "arterial hypertension" and the above sentences apply, I believe, to conditions of chronic high blood pressure.

I would apologize for the length of this paper, and yet it but partly covers the subject. Also the therapy of hypertension by a calcium rich diet and the technic of the administration of calcium preparations will not be discussed. And furthermore, although there are a considerable number of references, the reader is warned that this paper is in no sense a review of the literature, as only those papers have been referred to whose data appeared pertinent to the purposes of this discussion.

It is possible that calcium is not the only substance a deficiency of which leads to the production of high blood pressure. It may be, as Meyer and Gottlieb state, that calcium "^{is} only a better known and more thoroughly investigated example of the importance of the composition of the tissue fluids, and one that renders it probable that the remarkable susceptibility of many individuals to certain substances, such as morphine, strawberries, shell-fish, etc., is dependent on a peculiar chemical composition of the tissue fluids and protoplasm."⁶⁰ The work of Major on the action of guanidin compounds

should stimulate study of other products of metabolism as regards their influence on blood pressure. I would suggest particularly research pertaining to the action of these substances on the nervous mechanisms which control blood pressure. It seems clear that much more work is necessary to complete the picture of arterial hypertension and to give useful knowledge not only on the general prevention and treatment of high blood pressure, but also the control of these metabolic products in the cases of advanced arterial hypertension.

CONCLUSIONS

There is no general agreement as to the etiology of arterial hypertension; in fact, it may be stated that it is an unsolved problem.

There is evidence that hypertension is dependent upon an altered physiology of the nervous mechanisms influencing the level of the blood pressure. To be more specific, it may be stated that high blood pressure is due either to increased stimuli from the sympathetic nervous system or a lessening of the inhibitory influence of the vagus nerve, or both.

Certain substances associated with normal metabolism, namely, the guanidin compounds, when injected into animals produce arterial hypertension. The administration of calcium will then promptly cause the blood pressure to return to normal.

The calcium content of the blood in hypertension has been found to be subnormal. The administration of calcium salts to patients affected by arterial hypertension has been successful in lowering the blood pressure.

When the calcium content of the blood serum is deficient the balance between the vagus and sympathetic nervous control of the blood pressure is disturbed; i. e., the vagal influence is lessened and the sympathetic is relatively unopposed. Then it is that the pressor action of such substances as guanidin may become manifest.

It is suggested that a diet deficient in calcium, a common fault in the diet of civilized races, is the primary cause of arterial hypertension.

REFERENCES

- 1 Moschowitz, E.: The Pathology of Hypertension. *Jour. Amer. Med. Assn.*, 79, 15:1196, Oct. 7, 1922.
- 2 Marchand: Verhandl. d. Cong. f. Inn. Med., 21:23, 1904.
- 3 Hertel, Maria Pia: Das Verhalten des Endokards bei paroxysmaler Endokarditis und bei allgemeiner Blutdrucksteigerung. *Frankfurter Zeitschr. für Pathol.*, 14, 1920.
- 4 Harvey, E. D.: Die Ursachen der Arteriosklerose. *Virchow's Archiv für Path. Anat.*, 196:303, 1909.
- 5 Klots, O.: Experimentelle Arbeits-Arteriosklerose. *Zentralbl. f. allg. Path. u. Path. Anat.*, 19:535, 1908.
- 6 Carrel, A.: The Surgery of Blood Vessels. *Bull. Johns Hopkins Hosp.*, 18:18, 1907.
- 7 Allbutt, C. D.: Diseases of the Arteries, Including Angina Pectoris. The Macmillan Co., 1915.
- 8 Anderson, H. C.: The Relation of Blood Pressure to the Amount of Renal Tissue. *Jour. Exper. Med.*, 35:707, May 1, 1924.
- 9 Strouse, S. and Kelman, S. R.: Protein Feeding and High Blood Pressure. *Arch. Int. Med.*, 31:2:151, Feb. 1923.
- 10 Fisher, E. L.: The Relationship of High Blood Pressure to Other Impairments. *Amer. Med.*, New Series, 18, 6:446, June, 1923.
- 11 Arterial Hypertension. *Jour. Amer. Med. Assn.*, 74, 10:653, March 6, 1920.

12 Moesenthal, H. O., and Short, J. J.: The Spontaneous Variability of Blood-Pressure, with Special Reference to Sodium Chloride. Amer. Jour. Med. Sci., 165:550, 1923.

13 Reference 1.

14 Major, R. H., and Stephenson, W.: The Effect of Methyl Guanidine on the Blood Pressure. Johns Hopkins Bull., 35, 399:140, March and June, 1924, p. 181.

15 Major, R. H., and Reinhart, B.: Certain Products of Metabolism and Arterial Hypertension. Jour. Amer. Med. Assn., 83, 2:83, July 12, 1924.

16 Miller, J. L.: Discussion of Major's paper, Reference 14, last reference.

16 Osler, W.: Modern Medicine. Ed. 1, 4:429, 1902.

17 Bauer, L. F.: Causes and Treatment of the Conditions Underlying High Blood Pressure. Abstr. in Jour. Amer. Med. Assn., 79, 4:269, July 24, 1920.

18 Christian, H. A.: Essential Vascular Hypertension. Oxford Med., 3:751, 1920.

19 Barach, J. H.: Essential Vascular Hypertension. Jour. Amer. Med. Assn., 79, 26:2140, Dec. 23, 1922.

20 Williamson, J. R.: Heredity, Hypertension and Arteriosclerosis. Jour. Amer. Med. Assn., 78, 6:409, Feb. 11, 1922.

21 O'Hare, J. P., Walker, W. G., and Vickers, M. C.: Heredity and Hypertension. Jour. Amer. Med. Assn., 83, 1:27, July 5, 1924.

22 Monakow, E.: Hypertension: Its Significance, Relation to Arteriosclerosis and Nephritis, and Etiology. Amer. Jour. Med. Sci., 158:668, Nov., 1919.

23 Reference 19.

24 Reference 21.

25 Alvarez, W. C.: California State Jour. Med., 17:367, Oct., 1924; abstr. in Jour. Amer. Med. Assn., 79, 10:212, Nov., 1924.

26 Cadbury, W. W.: Blood Pressure in Normal Cantonese Students. Arch. Int. Med., 30, 3:362, Sept., 1922. Racial Factors in Blood Pressure; editorial in Jour. Amer. Med. Assn., 79, 1:610, Nov. 4, 1922; abstr. in Lit. Digest, Jan. 13, 1923, p. 23.

27 Hunter, J. L.: Blood Pressure: What Affects It? Betterment of Life Series, New York Life Insurance Co., New York, 1924; also abstr. in Lit. Digest, Mch. 8, 1924, p. 77.

28 Burton-Oliver, R.: A Text-Book of Physiology. W. B. Saunders Co., Philadelphia, 1920, p. 357.

29 Bayliss, W. M.: Principles of General Physiology. Longmans, Green & Co., London and New York, 1915, p. 687.

30 Tulgan, J.: A Study of the Relation of Afferent Impulses to the Activity of the Central Cardio-vascular Nervous Mechanism. Amer. Jour. Physiol., Ixv, 1:174, June, 1924.

31 O'Hare, J. P.: Contributions to the Investigation of Hypertension. Med. Clinics of North America, 5:1349, Mar., 1921.

32 Müller, C.: Measurement of the Blood Pressure During Sleep. Acta Med. Scandinavica, Stockholm, 55, 5:443, Dec. 24, 1921.

33 Blume, P.: Blood Pressure During Sleep. Ugeskrift for Læger, Copenhagen, 84, 35:1126, Aug. 31, 1922; abstr. in Jour. Amer. Med. Assn., 79, 24:2046, Dec. 9, 1922.

34 Fahr, G. E.: Hypertension Heart. Jour. Amer. Med. Assn., 80, 14:981, Apr. 17, 1923.

35 Foster, N. B.: The Treatment of Hypertension. Jour. Amer. Med. Assn., 79, 14:1091, Sept. 30, 1922.

36 Monakow, P. V.: High Blood Pressure and the Kidneys. Deutsches J. f. Klin. Med., 133, 3:128, Aug. 20, 1920.

37 Reference 29, p. 215.

38 Jackson, C. M.: The Effects of Experimental Rickets upon the Weight of Various Organs in Albino Rats. Amer. Jour. Physiol., 65, 1:1, June 1, 1923.

39 Volt, E.: Zeitschr. f. Biol., xvii:55, 1920.

40 Reiss, W. R.: Hypertrophy of the Heart. Med. Jour. and Recens., in press.

41 McCollom, E. V.: Personal letter in answer to inquiry on the matter.

42 Chiari, R., and Fröhlich, A.: Zur Frage der Nervenerregbarkeit bei der Oxalatvergiftung. Arch. f. exp. Path. u. Physiol., 66:110, 1919.

43 Reference 19, second reference.

44 High Arterial Blood-Pressure: Its Nature, Causes, Effects and Treatment. Amer. Med., New Series, 18, 6:359, June, 1923.

45 Comstock, D. D.: The Diet in Its Relation to Hypertension. California State Jour. Med., 21:49, Feb., 1923.

46 Reference 19.

47 McCollom, E. V.: The Newer Knowledge of Nutrition. Second ed., 1923. The Macmillan Co., New York.

48 Reference 47, p. 381.

49 Reference 46.

50 Hoagland, A. H.: Climacteric Hypertension. A Study of High Blood-Pressure During and Following the Menopause. Amer. Jour. Med. Sci., 157, 6:326, June, 1919.

51 Willius, F. A., and Boothby, W. W.: The Heart in Exophthalmic Goitre and Adenoma with Hyperthyroidism. Med. Clinics, No. Amer., 18:193, July, 1923.

52 Willius, F. A.: The Internal Secretions. Trans. by J. Gutman. The Macmillan Co., 1923, p. 116.

53 Sonnenchein, H., and Pearlman, S. J.: Calcium and Parathyroid Glands in Relation to Hyperesthetic Rhinitis. Jour. Amer. Med. Assn., 83, 25:1973, Dec. 20, 1924.

54 Tisdale, F. F.: The Influence of the Sodium Ion in the Production of Tetany. Jour. Biol. Chem., 54:35, Sept., 1922.

55 Reference 54.

56 Reference 7, Vol. 2, p. 131.

57 Kylin, E.: Blood Calcium in Hypertension. Zentralbl. f. Med., 45:471, June 14, 1924; abstr. in Jour. Amer. Med. Assn., 83, 4:313, July 26, 1924. Calcium Content of Blood in Vegetative Neurons. Acta Med. Scandinav., Stockholm, 55:146, Jan. 1, 1925.

58 Addison, W. L. T.: Use of Calcium Chloride in Arterial Hypertension. Canad. Med. Assn. Jour., 14:1059, Nov., 1924.

59 Park, E. A.: The Etiology of Rickets. Physiologic Reviews, 3, 1:106, Jan., 1923.

60 Meyer, H. H., and Gottlieb, R.: Pharmacology, Clinical and Experimental. English translation by J. T. Halsey, 1914. J. B. Lippincott Co., Phila., 1914, p. 577.

A CASE OF YELLOW VISION ASSOCIATED WITH DIGITALIS POISONING

BY HENRY JACKSON, JR., AND L. G. ZERFAS

[From the IVth Medical Service, Boston City Hospital and the Thorndike Memorial Laboratory]

THE more common toxic signs and symptoms of digitalis poisoning,—nausea, vomiting, diarrhea, extrasystoles, bradycardia and the like,—are often enough seen in any large clinic and their significance is well known. Their appearance is a signal to discontinue, for the present at least, the administration of the drug. Sensory disturbances associated with an overdose of digitalis, on the other hand, are met with rarely, and even then may easily be overlooked simply because their meaning is not clear. Among the rather unusual sensory symptoms are found various disturbances of vision, chiefly yellow vision and various degrees of amblyopia. We have recently had the opportunity to study a case of digitalis poisoning which showed various severe eye symptoms as the result of long continued though not large doses of digitalis.

The case was first seen with Dr. Henry Jackson, Sr., who had been called in consultation, and the case is reported with his permission. The

patient's critical condition and the marked visual disturbances made hospital care advisable and she was therefore admitted to the IVth Medical Service of the Boston City Hospital.

Mrs. H. entered the Boston City Hospital on October 28, 1924, complaining of yellow vision, great weakness, dyspnea, and precordial pain. She was married, 55 years of age, and had been in good health until 1918, except for a questionable history of rheumatic fever in early youth. In October, 1918, she had an attack of severe precordial pain which radiated down the left arm to the left wrist and hand and was followed by numbness in the same area. During the last six years she has had ten such attacks, each relieved by small doses nitroglycerine; but following each attack she has had extreme weakness, and "splitting headaches."

Four years ago she began to have some dyspnea on exertion, with slight edema of the ankles. Her family physician gave her Tr. of Digitalis

15 minimis three times a day, which afforded her considerable relief, and during the past four years she has taken Tr. of Digitalis as prescribed above without constant medical supervision, however.

Three years ago she developed an attack of failing vision. Everything appeared yellow before her eyes. She went to several oculists who found no organic lesion of the eyes. He changed the lenses of her glasses; but these changes did not relieve her condition. The yellow vision disappeared after a period of five weeks, but reappeared one year later. The second attack was very much like the first, and passed off spontaneously at the end of eight weeks. The digitalis therapy was not interrupted.

The present illness began during the week of July 4, 1924, with slight changes in vision such as had been experienced on the two previous occasions mentioned above. She was unable clearly to distinguish objects and persons at a distance, and everything seemed to be bathed in a very intense glaring white light. This visual disturbance remained about the same until a month before entrance into the hospital, when all things appeared yellow and at times she saw T shaped objects in the sky or any blank surface. The air seemed filled with yellow snow, and the grass appeared distinctly blue in color. The sky appeared green. At times she had double vision, and often the right side of an object disappeared before her eyes. She was unable to read the largest type in the newspapers. Accompanying these visual changes were severe headaches, nausea, vomiting, weakness, dyspnea, precordial, and epigastric pain.

The physical examination showed a woman of 55 years, who was somewhat dyspneic and had slight cyanosis of the lips and tongue. The pupils of the eyes were regular and reacted normally to light and accommodation. There was no evidence of diplopia, no nystagmus, and the ophthalmoscopic examination was negative. She was unable to read the head lines of the

beat was forceful with the point of maximum impulse in the 5th space, 12 cm. to the left of the midsternal line. There was a soft systolic murmur at the apex, but no thrills were palpable at either apex or base. The heart sounds were irregular in both rate and rhythm, ranging in rate from 45-110 per minute. The irregularity consisted in very sudden and extreme changes of rate. At one moment the heart beat regularly, at 50 a minute, the next moment it beat irregularly at 110 per minute, but the variation in rate bore no relationship to respiration. The venous waves in the neck corresponded to the arterial waves. Repeated examination showed that these rapid changes in rate occurred in no definite sequence.

The peripheral arteries were not sclerosed, and there was no pulse deficit. The systolic blood pressure was 165, and the diastolic blood pressure was 110.

The liver and spleen were not palpable, nor was there any ascites. There was, however, slight edema of the ankles.

The urine showed a slight trace of albumin with a few hyaline and finely granular casts, but no red blood cells.

The diagnoses of Angina Pectoris, Chronic Myocarditis, and Digitalis Poisoning were made.

The patient was kept in bed, and digitalis was omitted. During the first two days she had three attacks of anginal pain, each attack relieved by nitroglycerine gr. 1/100.

The first electrocardiogram, taken 19 hours after entrance, showed apparently complete auricular standstill, with a ventricular rate of 46 per minute. The T waves were inverted in lead II, and the ventricular waves were small in size. (See Fig I.) Unfortunately no electrocardiogram showed the rapid changes of rhythm observed clinically. These disappeared soon after entrance and the exact mechanism must remain in doubt.

Late in the afternoon of the first day nodal

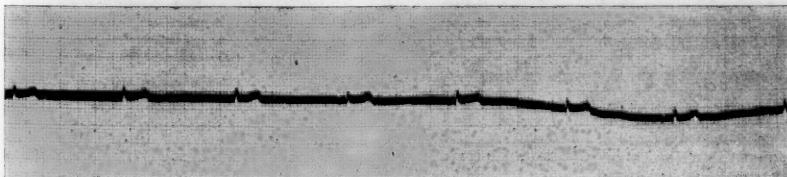


FIG. I. LEAD I.

newspapers, and everything appeared yellow before her eyes.

Hearing was unimpaired.

The lungs were resonant throughout, and no rales were heard.

The heart was enlarged to the left, measuring 12.5 cm. from the midsternal line. The apex

rhythm was established with shifting of the pacemaker. (Fig. II.) Her vision remained very much the same as on entrance.

At the end of 46 hours, her ventricular rate ranged between 50-70 per minute, with marked sinus arrhythmia. (Fig. III). The nausea had practically disappeared but she was still unable

to read the large head lines in the newspapers, and the yellow vision persisted.

Short runs of nodal rhythm were seen for the next day or so, and frequent ectopic beats occurred, with diphasic T waves. (Fig. IV.)

The condition of yellow vision had entirely disappeared on the ninth day after entrance and

complained only of general weakness, but was allowed up in a chair for a short time.

At the end of sixteen days she was discharged with no evidence of impaired, or yellow vision. The systolic blood pressure had dropped to 135 and the diastolic to 75. The urine was negative, and an electrocardiogram showed a normal car-

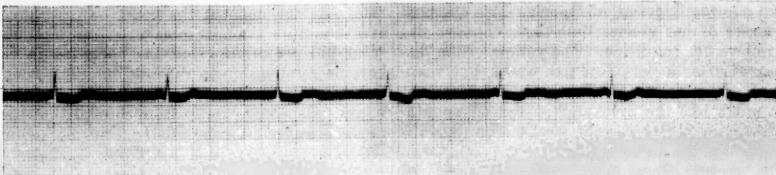


FIG. II, LEAD II.

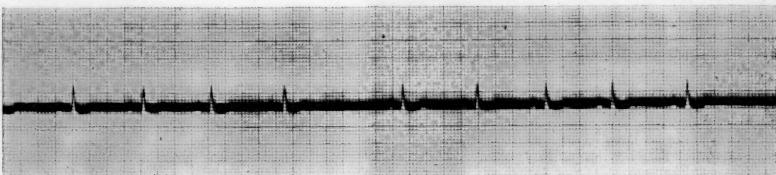


FIG. III, LEAD I.

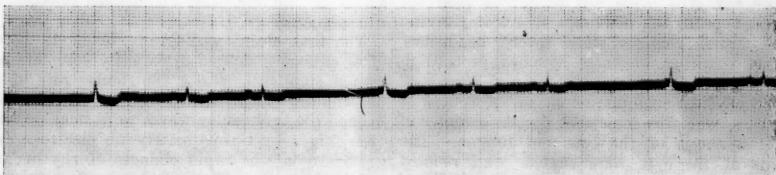


FIG. IV, LEAD II.

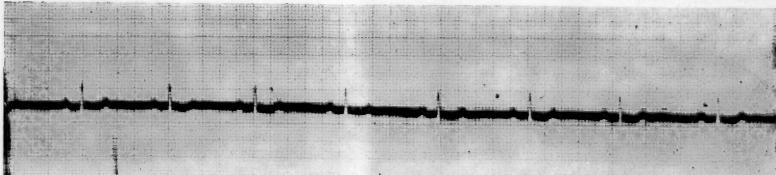


FIG. V, LEAD II.

she had no difficulty in reading the large as well as the small print of the newspapers. The urine contained neither albumin nor casts. The edema of the ankles had disappeared. The electrocardiogram on the tenth day showed a ventricular rate of 55-60 per minute and no inverted T waves in lead II, with only slight sinus arrhythmia. (Fig. V.)

At the end of the fourteenth day she com-

plied rhythm with a ventricular rate of 64 per minute. (See Fig. VI.)

Five months later there had been no marked changes in her condition, and no return of her visual disturbances.

The case seems interesting both from the point of view of visual disturbances, and the cardiac irregularities. Yellow vision as a symptom of digitalis poisoning is referred to casually in most

text books—a few histories have been reported. It is nevertheless a rare symptom. Yellow vision is seen after santonin, cannabis indica, amyl that in the above case comparatively small doses brought on the condition. It may be that the condition of yellow vision is more common than

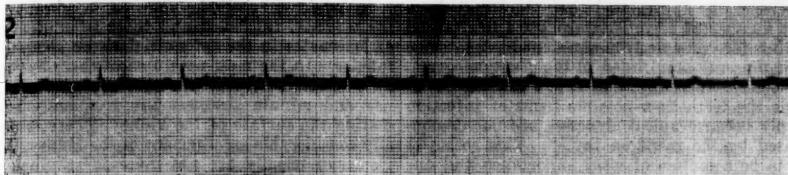


FIG. VI. LEAD II.

nitrite, and picric acid poisoning. Its presence we suppose and that more careful questioning of calls for a careful inquiry into any medicine patients with toxic manifestations of digitalis which may have been taken. It is noteworthy will reveal this fact.

PYELONEPHRITIS*

BY ARTHUR H. CROSBIE

My subject for tonight is pyelonephritis. By that is meant any bacterial invasion of the kidney. The infection always involves not only the mucous membrane of the kidney pelvis, but also the tubules, often extending as far as the cortex of the kidney in the most severe cases. The glomeruli usually are not involved. This includes infectious nephritis and pyelonephritis. The term pyelitis which is so often used, especially in children, should be given up. The infection, however mild, is never confined to the pelvis alone. The so-called pyelitis of pregnancy is, of course, pyelonephritis.

Pyelonephritis is the most common disease encountered by the genito-urinary surgeon and yet is the one most seldom written about. It is much easier and more interesting to write about conditions which show gross pathology, such as stones, pyonephrosis, kinks of the ureter, tumors, etc. Not long ago I sent an article on pyelonephritis to a local medical journal for publication. It was rejected because it presented nothing new to the subject. I have nothing radically new to present tonight, but it seems to me that condition that is so prevalent and is so often neglected should be talked over frequently.

Before I go any farther there are certain axioms regarding pyelonephritis that I want to lay down and enlarge upon later.

1. Pyelonephritis occurring in an otherwise normal kidney, unless caused by the tubercle bacilli, tends to get well.
2. Recurring attacks no matter how slight should be investigated by pyelograms.
3. If attacks recur in kidneys that have been proved to be normal otherwise, always look for focal infection especially devitalized teeth, tonsils and intestinal stasis.

4. Pain is not a constant nor a reliable symptom either in a simple pyelonephritis or in pyelonephritis developing in an abnormal kidney. Many times pyelonephritis developing in an abnormal kidney, that is in the presence of stones, kinked ureter, etc., may entirely destroy that kidney without localized pain ever being present.
5. Every case of pyelonephritis should have the urinary sediment followed after the subsidence of symptoms. If red cells or leucocytes persist pyelograms should be done. A kidney rarely becomes destroyed without telltale evidence in the urinary sediment.

Any of the pus producing bacteria may be the active factor in producing kidney infections. As you know, the most common organism found is the colon bacillus. The excellent work of Bumpus, Meisser, Rosenow and others has proved very conclusively that in a great many cases the colon bacillus is secondary invader, which has overgrown the streptococcus which was the original offender. The colon bacillus grows rapidly and makes it hard to detect other bacteria.

The work of Bumpus and Meisser has a very important bearing on kidney infections. They took a series of cases with pyelonephritis in which the urine showed colon bacilli. Pure cultures made from the urine from these cases injected into rabbits produced no kidney infection. Then they made cultures from the roots of devitalized teeth, removed from these same patients, and were able invariably to grow a green producing streptococcus. These cultures injected into rabbits always produced kidney infection, showing that this streptococcus has a specificity for renal tissue. These patients all showed a rapid improvement after the removal of these devitalized teeth.

*Read before the Surgical Section of Suffolk District Medical Society, February 25, 1925.

In this series they purposely took patients in whom the devitalized teeth showed no bony changes by the roentgen ray. Let me quote two sentences from their paper. They say, "It is not generally appreciated that there may be a vast number of organisms around a devitalized tooth before they destroy sufficient bone to make their presence manifested in the roentgenogram. We believe, therefore, that it is a mistake to exclude the teeth as a possible focus of infection simply because apical abscesses are not demonstrated by the roentgen ray." This seems to me to be a matter of vital importance and one that we are not paying enough attention to. It strikes me that it is very logical that a devitalized tooth acts almost as a foreign body in the gum and is bound to have bacteria at its root which may be absorbed into the blood stream. It astounds me to find how many people who have recurring attacks of kidney infection have such teeth. It is my opinion that all devitalized teeth should be removed whether they are causing symptoms or not. I hope the time is coming when our medical schools and dental schools will teach against killing the nerve and leaving a dead tooth in the head.

Any focus of infection in the body may be a source of pyelonephritis. It is well known fact to all that the removal of infected tonsils often stops recurring attacks of kidney infection. Intestinal stasis is undoubtedly a factor.

Any condition which impairs the resistance of the individual renders one more liable to kidney infection. Children who are rundown from any cause are prone to the so-called pyelitis. Adults are apt to be attacked when fatigued either mentally or physically. How often you see this condition coming on after a person has been chilled by staying too long in cold water. Sitting in the cold where the buttocks becomes chilled, as one does at a football game, is a common factor. Anything which impairs the resistance of the kidney itself renders it a likely field for infection. Direct trauma may do this, the presence of stones or tumors is another factor. Anything which hinders the free flow of urine from the kidney, whether that obstruction be at the kidney, such as an aberrant vessel, or lower in the tract as strictures, prostates, gravid uterus, etc., makes the kidneys more susceptible to infection.

That infection reaches the kidney through the blood stream as a rule is pretty generally accepted. As Cabot and Crabtree have pointed out the bacteria may be in the blood stream but momentarily before they become lodged in the kidneys. Such work as Graves has done shows the possibility of ascending infection, but my feeling is that even in the cases where the ureters are widely dilated, encouraging ureteral regurgitation, the infection generally takes place through the blood stream. The so-called urethral chill, following occasionally the pas-

sage of a sound, is undoubtedly a pyelonephritis caused by the passage of bacteria into the blood stream through a break in the mucous membrane.

In pyelonephritis the mucous membrane of the pelvis is thickened and there is infiltration of leucocytes in the interstitial tissue about the tubules. In the most severe cases there are minute abscesses through the substance of the kidney and minute abscesses are frequently seen dotting the surface of the kidney. There is usually considerable enlargement of the kidney. The glomeruli usually are not involved so much as the tubules. In some cases the infection is localized suggesting a septic infarct. In some cases there is marked infection of the bladder producing the so-called beef-steak bladder, in others the bladder almost wholly escapes.

The urine shows pus and bacteria. In the acute stages red blood cells are usually present. Casts are notable for their absence. If many casts are present one should be suspicious of an underlying nephritis.

During the acute febrile stage the white blood cell count is high, especially if there is not free drainage.

The symptoms vary all the way from none to most marked symptoms of prostration and localized pain. As students we are taught that in cases of unexplained fever in children to examine the urine carefully for pus as so often these are cases of the so-called pyelitis. In adults the same should be borne in mind, although they generally are conscious of some discomfort in the kidney region. Many people complain of nothing but frequency and many of these cases escape under the diagnosis of cystitis. Where the bladder is much involved terminal hematuria is not uncommon. Occasionally hematuria is a prominent symptom. A typical example of this is a woman of 43 years who consulted me January 15, 1924. She had had a severe cystitis for nine months with recurring attacks of frank hematuria. To my surprise examination showed simply a colon bacillus infection of the left kidney. There were no tubercle bacilli in the urine and the guinea pig test was negative. Pyelograms showed only a suggestion of blunting of the calyces of the left kidney. This patient has been entirely relieved by pelvic lavage and bladder dilatation.

Not infrequently the symptoms are those of a stone passing down the ureter. I have seen three cases recently who were sent to me with the diagnosis of stone in the ureter. Examination showed these to be cases of pyelonephritis and the pain was caused by the passage of a plug of mucus down the ureter. Sometimes a plug of mucus will block a ureter causing severe pain and a temporary hydronephrosis accompanied by chills and high fever. At such a time it is not uncommon to have the patient pass clear urine as the urine from the infected kidney is shut off. As the plug passes the tem-

perature drops and the urine becomes turbid again.

Why some have frequency and others do not I cannot explain. One of the most severe cases of pyelonephritis of pregnancy that I have seen had no bladder symptoms and the bladder looked normal, although the urine was loaded with pus and colon bacilli. Another person will have severe cystitis with beef-steak bladder and yet the urine from the kidneys shows only a mild infection.

The presence of fever depends on the severity of the infection and upon how good the drainage is. Pyelonephritis developing where there is obstruction to the outflow of urine anywhere in the urinary tract is a most serious affair and is apt to have fatal results unless overcome.

During the acute stage the temperature is apt to be very high and be septic in character. You will often see it as high as 105° and yet the patient does not look very sick unless the disease is of long standing.

Pain as a rule is not a prominent symptom. Usually there is a little tenderness at the costovertebral angle. At times there is marked tenderness and spasm over the affected kidney. Just because there is no pain is no sign that kidney destruction is not going on. I saw a man recently who had an attack of chills and fever twelve years ago lasting several weeks. Since then he has been in moderate health. He has never had backache. He was brought to me with severe renal colic. He had dislodged one of a quarry of stones which had stuck in the ureter. His left kidney was entirely destroyed. I have not the slightest doubt that the attack he had twelve years ago was pyelonephritis and that a process of destruction had been going on gradually ever since. A careful examination of the urinary sediment following that attack or at any time since would have disclosed the fact that the destruction was going on. Look at the pus kidneys that we are so often called upon to remove at operation it is so evident that a process of destruction has been going on for years. Most of these cases date back to an attack of pyelonephritis which started the trouble.

In the chronic cases frequency of urination is usually the only symptom. In many of these the infection is slight. The urine may be clear and it is only by careful examination of the urinary sediment that a few pus cells and bacteria are revealed.

The diagnosis of pyelonephritis is usually simple, especially in the acute cases. Fever, dull pain in the loins and pus and bacteria in the urine. It is especially easy as it often happens one kidney is enlarged and tender. In the acute cases it generally is not necessary to catheterize the ureters to make the diagnosis, in fact I prefer not to catheterize the ureters in the acute cases unless the symptoms point to obstruction of the ureter with hydronephrosis.

Where the prominent symptoms are on the right side it is sometimes hard to differentiate between a kidney infected and disease of the gall bladder or appendix. Inflammation along the ureter will sometimes produce considerable tenderness in the appendix region. There usually is not so much muscular spasm and localized tenderness as there is in an acute appendix. A fact to be borne in mind is that an acute appendix lying close to a ureter or the bladder may cause pus cells and red cells to appear in the urine. If the symptoms point strongly to appendicitis it is better to remove an innocuous appendix than to run the risk of letting one rupture.

In chronic cases the diagnosis of course is only made by careful examination of a catheter specimen of urine and by pyelograms and ureterograms.

The treatment of pyelonephritis depends upon its severity. The typical acute cases with chills, fever and prostration should of course have bed treatment until the fever has subsided. More important than any medication is the ingestion of large amounts of water. If sufficient water cannot be taken by mouth it should be supplemented by hypodermoclysis. The output of urine should be pushed up around 100 ounces for twenty-four hours.

For medication I like the alkalies. Rendering the urine alkali helps during the acute stage especially where the colon bacillus is present. After the acute stage is over it is well to acidify the urine and give hexamethylenamin. If a patient does not do well under alkalies I am apt to shift and use hexamethylenamin. In cases where the infection is caused by the typhoid bacillus hexamethylenamin alone works best. I recently saw a man who was suffering from a severe pyelonephritis. Large doses of alkalies had given no relief. The urine was very turbid and loaded with pus and motile bacilli. Culture showed a pure growth of the typhoid bacillus. Under large doses of hexamethylenamin and sodium benzoate the urine was almost free of bacteria in three days.

As I have said before I do not advocate catheterizing the ureters in the acute cases unless there is evidence of hydronephrosis. If the ureter is obstructed by a plug of mucous or by pressure of some sort great relief may be given by emptying the kidney pelvis by catheter. At times it has been necessary to leave the catheter in place for some time for drainage. I prefer not to do this as a catheter left in the ureter will produce a ureteritis just the same as a catheter in the urethra will produce a urethritis.

A simple X-ray is important in the acute cases to rule out the possibility of stone. There is always the chance that there might be a stone completely obstructing the ureter which should be attended to at once. It is seldom that operative interference is necessary in acute pyelonephritis. It is occasionally necessary to do a

nephrostomy where there is infection plus hydronephrosis. I have never yet seen a pyelonephritis in an otherwise normal kidney that was so severe as to necessitate a nephrectomy. These infections are nearly always bilateral, although more marked on one side. If one kidney is removed the infection is apt to increase in the other kidney. I have cut down on these kidneys and have seen them studded with small yellow abscesses, but I have yet to see one that did not eventually get well if left alone, except in the case of pyelonephritis of pregnancy where it was impossible to get permission to empty the uterus. The pyelonephritis of pregnancy may become so severe that it is necessary to empty the uterus to save life. Nature generally attends to this and a miscarriage occurs. With the uterus empty the pyelonephritis rapidly clears up if the kidneys are otherwise normal.

In all cases of pyelonephritis the source of infection should be sought for and an endeavor made to remove it when the patient is in suitable shape. Devitalized teeth should be removed. The tonsils should be investigated and removed if diseased. Attention should be given to the bowels as a possible source of infection.

As I have stated before, pyelonephritis in an otherwise normal kidney tends to get well. Every case should have the urinary sediment carefully followed and if the pus cells, red cells and bacteria do not entirely disappear pyelograms should be done. Such an infection occurring in an abnormal kidney will persist and in time destroy the kidney. Many of the kidneys that we are forced to remove could have been saved had the condition been recognized earlier. Any obstruction to a ureter plus infection means a destroyed kidney in time.

Recurring attacks should mean a thorough investigation of the kidneys. I cannot be too emphatic on this point. Children who are so prone to pyelonephritis are especially neglected in this. Last year I saw a girl of twelve who had recurring attacks of the so-called pelvitis ever since she was two years old. Examination showed that one kidney was atrophic and nothing but a pus sac. This was removed and she has had no attacks since. Of course, there was no time that this kidney could have been saved, but the child would have been in much better health with the kidney out. A careful examination of the urinary sediment in this case at any time would undoubtedly have revealed the fact that her infection had never cleared up.

Today I saw a patient that exemplifies my point. She is a girl of five. Four months ago she had an attack of acute pyelonephritis with fever which lasted a week. Since then her health has been good. She is of normal weight and good color. Her physician, who is a very careful man, has followed her urinary sediment finds that she still has numerous leucocytes and bacteria. He has had her tonsils removed with-

out the urine clearing up. This is just the sort of case that I feel it is so important to investigate. The pyelograms may be negative, but at least we will know that no permanent damage is being done the kidneys.

The treatment of chronic pyelonephritis is as a rule satisfactory. After it has been proved that the kidneys are not abnormal and all possible sources of infection have been cleared up pelvic lavage and bladder dilatation will accomplish a great deal. For pelvic lavage I used to use a silver nitrate, but the last few years I have used 2½% mercuriochrome, which I feel works better. Bladder dilatation with some non-irritating solution, such as potassium permanaganate 1:5000 or simply boric solution is important where there is much frequency. Following an attack of pyelonephritis many people develop a habit of passing the urine often and the bladder although no longer inflamed becomes contracted. These cases are greatly relieved and many entirely cured by dilatation. The method I use is to fill the bladder up to the point of discomfort. Treatment is given twice a week. At the next visit a little more is injected. The amount is gradually increased until the bladder will hold in the neighborhood of 500 c.c.

A typical example of what may be accomplished in this way is seen in the following case. A man of 42 years consulted me January 8, 1924, with a history of having had gripe four months before. With it he had an attack of pyelonephritis. Ever since he has had marked frequency, having to get up every hour at night. Examination showed many leucocytes, red blood cells and a pure growth of colon bacilli in the urine. Cystoscopic examination showed a much inflamed bladder. The urine from both kidneys showed numerous leucocytes and colon bacilli. Pyelograms were negative and the function of the kidneys was normal. The bladder capacity at that time was 150 c.c. He was at once started on double pelvic lavage and bladder dilatation. On June 16th, 1924, he was discharged well, entirely relieved of symptoms and the urine was free from leucocytes and bacteria. No source of infection other than the gripe was discovered in this man.

In closing this paper I wish again to emphasize the importance of following the urinary sediment after all cases of pyelonephritis. If this is done many kidneys will be saved that otherwise would become destroyed in time.

REFERENCES

- Bumpus, H. C., Jr., and Meissner, J. G.: Foci of infection in cases of pyelonephritis. Study I-1. *Jour. Am. Med. Assn.*, 1921, lxxvii.
- Cabot, Hugh, and Crabtree, E. G.: The etiology and pathology of non-tuberculous renal disease. *Transactions of Am. Assn. of Genito-Urinary Surgeons*, 1916, V, p. XL.
- Graves, R. C., and Davidoff, L. M.: II. Studies on the ureter and bladder, with especial reference to regurgitation of the vesical contents. *Jour. of Urology*, 1924, Vol. XII, No. 2.
- Rosenow, E. C., and Meissner, J. G.: Nephritis and urinary calculi after production of chronic foci of infection; preliminary report. *Jour. Am. Med. Assn.*, 1922, lxxviii, 366.

THE INTRA-ABDOMINAL DIAGNOSIS OF GALL BLADDER DISEASE*

(With particular reference to Chronic Cholecystitis)

BY CARL BEARSE, M. D., BOSTON

WHEN a normal appearing gall bladder is found at an operation for gall bladder disease, the question arises as to the correctness of the clinical diagnosis. If it will be remembered that it is possible for such an innocent appearing gall bladder to be pathological, and the source of the symptoms, the intra-abdominal picture will not be permitted to overshadow the clinical history.

ILLUSTRATIVE CASES

Mrs. Del V. Age 43. Married. Italian. Referred by Dr. S. S. Listernick on Dec. 4, 1924.

P. H. Had 17 pregnancies, 4 of which miscarried. Has 9 children that are living and well. Never sick until this present illness.

P. I. During the past two years has had many attacks of pain in the right upper abdomen, radiating to the back. There would be vomiting during an attack, and fairly constant indigestion unrelated to meals between attacks. Bowels are constipated; color of stools never noticed. The skin becomes jaundiced after an attack, the last one being two weeks ago.

P. E. Is well developed and nourished. Temperature is normal. Pulse 72. Skin not icteric. The sclera of eyes are clear, and pupils react normally. Tongue is moist and clean. The throat is negative. Teeth are in good condition. There is no glandular enlargement. The chest is well developed and symmetrical. The lungs are clear. The heart is of normal size, regular in action, the sounds of good quality, and no murmurs heard. Extremities are not oedematous, not scarred, and have moderate varicosities. The knee jerks are active and equal, and no abnormal reflexes are present.

The abdomen is soft, not distended, and contains no masses. There is definite localized tenderness at the gall bladder area, but the gall bladder could not be felt. The liver could not be palpated.

Diagnosis: Chronic Cholecystitis.

Operation on December 5, 1924, at the Chelsea Memorial Hospital. A high right rectus incision made, splitting that muscle in the direction of its fibres. The gall bladder exposed, and found to be of normal size and color, not thickened, containing no stones, and easily emptied. The gall bladder and a slightly injected appendix removed. A cigarette wick placed in the gall bladder bed, and the abdomen closed in layers.

Pathological examination of the gall bladder made by Dr. F. P. McCarthy, whose report follows:

"Received a relatively normal gall bladder, measuring 4.5 cm. in length. The outer serosal surface has a normal appearance except in lower portion where there is a whitish and slightly thickened area. The mucosa of the gall bladder has a strawberry appearance, and shows no alteration.

Microscopic examination shows that the mucosa is thrown into folds and is denuded in places. The submucosa shows a slight increase in connective tissue with moderate round cell infiltration. At one place there is a hemorrhage into the wall in relation to a ruptured vein."

Diagnosis: Chronic Fibrous Cholecystitis.

CASE 2

Mrs. E. S. Age 54. Married. Jewish. From the Surgical Service of the Beth Israel Hospital, Boston. Admitted to the hospital on September 2, 1924.

P. H. Had no exanthematos diseases. In 1908 she had a pelvic operation, followed by "blood poisoning," and remained in the hospital for five months.

P. I. Has had recurrent attacks of pain for the past two years, so severe at times that hypodermics had to be used. The pain would start under the right costal margin, and radiate to the back and right shoulder. The attacks were sometimes accompanied by jaundice. Two years ago she had an attack which was followed by jaundice which persisted for four weeks. The pain has no relation to the taking of food; she believes a good deal during an attack. The last attack was four days ago, and the pain was so severe that a hypodermic of morphin had to be given.

P. E. A well developed and nourished woman lying comfortably in bed. Temperature 100.5°. Pulse 88. Skin of good color, not icteric. Sclera are clear, and pupils react normally. Tongue moist and slightly coated. Tonsils slightly hypertrophied. Teeth almost all missing. No glandular enlargement. Chest well developed and symmetrical. Lungs are resonant; few moist rales heard at right base. Heart slightly enlarged, sounds distant, action regular, and no murmurs heard. Blood pressure 130—64. Extremities are not oedematous, not scarred, and have no varicosities. The knee jerks are equal and active, and no abnormal reflexes are present.

The abdomen is soft and pendulous; no masses

*Read before the Taunton Medical Society, January 20, 1925.

felt. There is a firm linear scar in the median line below the umbilicus; there is definite localized tenderness at the gall bladder area, and in the midline above the umbilicus. The gall bladder and liver could not be palpated.

Diagnosis: Chronic Cholecystitis.

Operation on September 8, 1924, at the Beth Israel Hospital. A high right rectus incision made, splitting that muscle in the direction of its fibres. The gall bladder was exposed, and found to be of normal size, color, and consistency, having no adhesions, containing no stones, and easily emptied. The gall bladder was removed together with a slightly injected appendix, which was lying free in the pelvis. A cigarette wick was placed in the gall bladder bed, and the abdomen closed in layers.

Pathological examination of the gall bladder made by Dr. F. P. McCarthy, whose report follows:

"Received a gall bladder of normal size and thickness, with a smooth serosal surface. On opening the gall bladder the bile was found to be of a brown mucoid character. The mucous membrane is generally reddened, and has a strawberry appearance.

Microscopic examination showed the mucous membrane is in places denuded. There is a slight increase in fibrous connective tissue in the submucosa with a moderate round cell infiltration. There is a diffuse hemorrhage at one place in the muscular layer tending to infiltrate the serosal layer."

Diagnosis: Chronic Fibrous Cholecystitis.

CASE 3

Mrs. G. B. Age 33. Married. American. Referred on April 19, 1923, by Dr. G. A. Haines.

P. H. Scarlet fever, measles, diphtheria, whooping cough, shingles, and influenza during childhood. Appendectomy 12 years ago, and three months later operated on for adhesions. Had four pregnancies, no miscarriages, and has three children that are living and well.

P. I. Four years ago, while in a hospital convalescing from a confinement, had an attack of pain diagnosed as gall stones. Since then has had recurrent attacks every three months. During an attack feels nauseated, and has pain under the right costal margin, radiating to back as well as to epigastrum. Stools are clay colored during attacks, and skin becomes yellow.

P. E. Is well developed and nourished. Color is good, not icteric. Temperature normal. Pulse 78. Eyes: sclera clear, and pupils react normally. Tongue moist and clean. Throat negative. Upper teeth missing. No glandular enlargement. Chest well developed and symmetrical.

Lungs negative. Heart area within normal limits, action regular, sounds of good quality, and no murmurs heard. Extremities: no oedema, no scarring, no varicosities; knee jerks present and equal; no abnormal reflexes.

The abdomen is soft and flabby, and not distended; no masses could be felt. Firm linear scar in right lower abdomen. There is definite localized tenderness at the gall bladder region; the gall bladder not palpable. The liver could not be felt.

Diagnosis: Chronic Cholecystitis.

Operation on April 20, 1923, at the Chelsea Memorial Hospital. The abdomen was opened through a high right rectus incision, splitting that muscle in the direction of its fibres. The gall bladder was exposed, and found to be normal in size, color, and consistency, containing no stones, easily emptied, and having no adhesions. The gall bladder was removed, and a cigarette wick placed in the gall bladder bed. The abdomen closed in layers.

The examination of the gall bladder showed it to contain thick, black, viscid bile, with the mucous membrane having a strawberry appearance. Unfortunately a microscopic examination was not made of this specimen, but the typical gall bladder symptoms, together with its external normal appearance and strawberry mucosa, and freedom from symptoms for over one and one-half years, prompted me to include this case report.

COMMENT

The fact that gall bladders may seem normal intra-abdominally, and yet be pathological has been pointed out in the past.

Moynihan¹ has called attention to the cholesterin gall bladder which appears normal to inspection and palpation, but which on close examination shows that in the mucosa, which has a strawberry appearance, there is imbedded quantities of cholesterol as fine as sand. These minute crystals of cholesterol may be seen glistening on the gauze with which the contents may have come in contact. This infiltration of the mucosa stops abruptly at the cystic duct. Also, the bile is usually dark and tarry. He advises cholecystectomy for this condition.

MacCarty² reported from the Mayo Clinic that in both the acute and chronic catarrhal non-calculus cholecystitis the gall bladder may retain its normal external appearance, and yet show pathological changes. On opening this gall bladder it is found that the villi are more prominent than normal, and in more advanced cases the villi may be eroded. These desquamated apices present themselves as yellow specks scattered over the mucosa, having a strawberry appearance, because of the resemblance of these specks to strawberry seeds. There is also to be

found thick viscid bile. He advises cholecystectomy for this condition.

Deaver³ states that bile is a factor in the diagnosis of gall bladder disease. Normal bile is thin, amber colored fluid containing a small amount of mucin. Due to infection or irritation the bile may become thicker, more viscid, and darker, or it may become stringy as the result of the abnormal activity of the glands of the mucosa. These changes in the bile should be considered in questionable disease of the gall bladder.

CONCLUSIONS

When the symptoms of gall bladder disease

are such that an operation is indicated, a normal appearing gall bladder does not mean that the diagnosis was incorrect. In such cases the interior of the gall bladder should be inspected; the finding of a strawberry mucosa, minute particles of cholesterol on the gauze, and stagnant or stringy bile are evidences of pathology. Since the disease is in the gall bladder walls, cholecystectomy is the operation of choice.

REFERENCES

- 1 Moynihan, B. G. A.: Gall Stones and Their Surgical Treatment, 1904, p. 59.
- 2 MacCarty, W. C.: Pathology of the Gall Bladder. Annals of Surgery, May, 1910, p. 655.
- 3 Deaver and Ashurst: Surgery of the Upper Abdomen, second edition.

OSSIFICATION OF THE PERONEAL TENDON OR SESAMOID, IN THE REGION OF ITS ATTACHMENT AT THE BASE OF THE FIFTH METATARSAL

BY LOUIS A. O. GODDU, PH. G. M. D., BOSTON, MASS.

TWELVE months previous to the time writer saw this patient, she had considerable trouble with the foot. Occupation was a nurse and of course she was on her feet a good deal. Doctor at the hospital told her to rest up, which she did at varying times. Foot was strapped, which

It seemed in view of the long period of conservative treatment that she had, and the disability, operative procedures were advised.

In looking at the X-rays it is rather interesting to note that it shows in the region of the peroneal along the base of the 5th metatarsal



helped some. Ten weeks ago wrenched ankle, was given arch support; had pain in bottom of foot and arch, and could not work.

Examination of her foot showed a tender area on the outer side of left foot, at about the region of the base of fifth metatarsal, definite palpation could be felt. X-ray advised.

X-rays showed just below the cuboid bone, two sections of what might be called sesamoid bones.

two calcified areas, this particular situation is not an abnormal one or a condition to be apprehensive about, only inasmuch as that it may give rise to symptoms. This particular patient went through a period of a year treatment, rest, plates, pads, strapping and in all the most important discouragement. She was undertaking a profession which necessitated her being on her feet a good deal, and it was only in frankly ad-

mitting to the patient that an exploratory should be done to ascertain definitely the cause which the writer supposed was related to the calcified areas.

Operation January, 1921—Incision was made down along the course of peroneal tendon, and the sheath of peroneus longus was exposed, this sheath was very much thickened, hard and showed fairly definite chronic inflammation. Sheath of tendon showed that it was exceedingly hard, definitely more than soft tissue. Tendon was opened and within this was drilled out a hard semi-cartilaginous mass, which was removed, the mass being about size of a small bean.

Enough of the tendon remained to continue its continuity. Wound was stitched in the usual way. Patient made an uneventful recovery. At the end of two days could move foot; stitches removed at the end of a week; at the end of two weeks wound was healed solid, and patient strapped up with adhesive, and advised to use foot. At the end of two months was back at her regular work, and having no trouble at all. At the present writing, some three years after the operation, patient has graduated from her training at the hospital, is on her feet as much as her duty requires, and having no disability whatever.

LEAD STEARATE POISONING IN THE RUBBER INDUSTRY

BY HERBERT J. CRONIN, M.D., CAMBRIDGE, MASS.

LEAD OXIDE or litharge in loose chemical combination with stearic acid and sulphur caused an unusual form of lead poisoning in nine employees working in a local rubber factory. Subacute dermatitis followed by deposits of lead in the skin, caused by an intracutaneous reaction of the chemicals, was the principal symptom.

USES

Stearic acid is $C_{18}H_{36}O_2$ and is associated with palmitic and oleic acids as a mixed ether in solid animal fats or tallow. It was used in the rubber industry as an emollient to soften the rubber. It was given to the rubber mixers in cakes similar to paraffine wax, was broken into pieces and thrown into the hot rubber mass. The other compounds were sulphur, which causes the vulcanization of the rubber, and lead oxide which is an accelerator of vulcanization. The heat of the mill turned solid stearic acid into an oily liquid that flowed over the mixer's hands and arms which were also covered with lead oxide powder. This lead oxide powder with powdered sulphur and many other compounds were contained in an iron pan beside the mill and were shovelled or scooped by hand onto the mill.

SYMPTOMS

A black deposit of lead stearate on the exposed parts of the hands, arms, and face was the characteristic symptom. There was a slight itching followed by a subacute dermatitis with dryness of the skin, fissures and desquamation. There were no constitutional symptoms of lead poisoning as this method of using stearic acid was discontinued.

A typical case is as follows:—P. G., age 44, Irish, rubber mixer. After using the new wax (stearic acid), for three days he stated that his hands were getting black and that no amount of

scrubbing would clean them. At the time of examination they were getting slightly itchy, were beginning to crack around the nails and between the fingers. Examination also showed the arms from the finger tips to the sleeve line at the elbow to be blackened by an intracutaneous deposit. The skin showed dryness, roughness, and about the nails and between the fingers, were fissures. On his cheeks and the sides of his neck there was a slight lead deposit and skin roughness due to contamination from his fingers.

TREATMENT

This method of using stearic acid was discontinued and the men were put on other employment temporarily. An antipruritic protective ointment containing,

Crude coal tar, 3*iv*
Starch, 3*i*.
Zinc oxide, 3*ii*.
Petrolatum, 3*i*.

This ointment was applied with loose bandages and after five days, the dermatitis had subsided. Free catharsis with compound cathartic pills was promoted to remove any absorbed lead.

PREVENTION

If stearic acid must be used with lead oxide, the workmen should have their arms covered and wear gloves. Yet, long sleeves and gloves are very dangerous when working about a mill because they may get caught and draw the man's arm between the rollers. The acid should be shovelled onto the mill but here the man finds it necessary to handle small pieces that drop and also must handle the mixed rubber when he cuts it from the mill. Scrupulous cleanliness should be observed. It is possible for rubber chemists to so combine stearic acid with other solvents as to prevent the reaction with lead on the workers' arms.

WHY ARE WE HERE?

Address of the President of the Manchester, N. H., Medical Association, October 1, 1924

BY JOHN F. HOLMES, M.D., F.A.C.S.

It has been a custom in this society for the president at the opening meeting each year to outline some feature in the general policy of the year's program desirable to attain.

In order to bring out some point for special emphasis, let me ask this question: Why are we here? Whether this is applied to the world in general, to the community or to our own medical association there seems to be one satisfactory answer. We are here to improve ourselves. And improvement cannot come to a group or body of people except that it come to the individual.

We cannot positively say what is good or what is not good, except as it applies to ourselves. Improvement is rather a vague and indefinite term, possessing a great deal of individuality. In a broad and general way it is a comprehensive term, but in the final analysis it becomes a personal equation and must be defined by our own consciences.

Assuming then, that we are here to improve ourselves, it is evident that there are many ways in which our aim can be accomplished. I have chosen to emphasize at this time, that which is conceded to be a virtue, namely, "Fellowship."

Edgar Guest has said, "The wealth of this world when you've summed it all up is found in the making of friends."

"Write me down," said Ben Adhem, "As one who loves his fellow men."

And when the angel came again and read, "Lo, Ben Adhem's name led all the rest."

In the medical fraternity generally as I see it, in the medical fraternity everywhere, there should be greater interest in organized effort. Benefit would come to us from a more sympathetic co-operation. Through a closer association of our members and a better understanding among ourselves, we would have greater freedom of constructive criticism and valuable knowledge resulting from personal experience, clinical observation, original thought and deduction would be more widely disseminated.

The greater our knowledge, the more proficient we are, the greater our own satisfaction and the greater is our possible service to the community.

It is evident from everyday life that when a horse is kicking he can't pull and when he's pulling he can't kick. We may profit by the lesson of football. Let's acquire a little better team work and with a united effort strive for the things worth while, our own and the common good.

Our profession has received unjust and undeserved criticism through the careless, thoughtless, perchance malicious word or deed of some

member out of harmony with the team. We must bear in mind that every thrust at a fellow member is a thrust at the profession, and every thrust at the profession is a thrust at ourselves. Medicine is not an exact science. It deals with human machinery. There must be differences of opinions among physicians frequently, all the more credit and glory to the profession, for it shows an honest, unselfish effort on the part of medicine to solve the many perplexing problems, even charity problems, that are constantly presenting themselves.

Let us have the utmost respect for the opinion of others, even the most humble, "There is so much good in the worst of us and so much bad in the best of us that it ill behoves any of us to find fault with the rest of us."

Many undesirable rules and regulations have been promulgated, many unwise and unjust laws have been enacted through lack of interest and lack of co-operation of medical men. If the medical profession is to act effectually it must act in co-operation, which can only be done through a kindly, sympathetic confidence among ourselves.

Let us at this time make a special effort along the line of "Fellowship"; let us become better acquainted, and in this medical fraternity of ours create a better understanding; "I expect to pass through this life but once. Any good therefore that I can do or any kindness that I can show to any fellow creature let me do it now. Let me not defer nor neglect it for I shall not pass this way again."

"Forsooth, brethren, fellowship is heaven and lack of fellowship is hell; fellowship is life and lack of fellowship is death; and the deed that ye do upon earth, it is for fellowship's sake that ye do it."

YALE UNIVERSITY announces the appointment of Professor Harold Clyde Bingham, of Wesleyan University, as research associate in the Institute of Psychology, and the appointment of four research assistants, as follows: Helen Heffron Roberts and Alvira A. Kirk, research assistants in anthropology, and Carleton F. Scofield and Donald K. Adams, research assistants in psychology. Dr. Bingham is professor of psychology at Wesleyan, and Miss Roberts and Mr. Scofield are now on appointment in the Institute. Miss Kirk comes to Yale University from the Department of Anthropology of the American Museum of Natural History, New York City, and Mr. Adams from the Psychological Laboratory at Harvard University.—*Science*.

MEDICAL PROGRESS

PROGRESS IN THE STUDY AND TREATMENT OF CARDIOVASCULAR DISEASE IN 1924

BY HOWARD B. SPRAGUE AND PAUL D. WHITE, BOSTON

(Concluded)

VI. CARDIOGRAPHY AND ABNORMALITIES OF THE HEART BEAT

Electrocardiography—White & Burwell have studied the effect of various valve lesions and hypertension on the electrocardiogram. Their work shows that "it is evident that there is a definite relationship between abnormal right axis deviation by electrocardiogram and mitral stenosis and pulmonic stenosis, and between abnormal left axis deviation and aortic regurgitation and hypertension. Also the auricular complex in Lead 1, Lead 2, or both is almost always abnormally prominent in cases of pulmonary stenosis and mitral stenosis." (*Arch. Int. Med.* 1924, 34:529.)

An analysis of the diphasic character of the P wave in normal and abnormal cases has been made by Baur (*Deutsch. Archiv. f. Klin. Med.* 1924, 145:129) by the use of leads taken directly from the esophagus.

A study was made by Cohn & Swift (*Jour. Exper. Med.* 1924, 39:1) of the electrocardiographic evidence of myocardial involvement during acute rheumatic fever. The heart was affected in 35 out of 37 cases in the following ways (1) lengthened A-V conduction—usually not up to block, (2) alteration in the Q R S complex, the R-T interval or the T wave, (3) irregularities of rhythm. These are not specific for rheumatic fever, but the authors believe they are useful in prognosis.

An attempt was made by von Haynal & Kellner to secure electrocardiograms of the fetus in utero. A series of men and pregnant and non-pregnant women were studied. (*Zeitschr. f. Klin. Med.* 1924, 89:365.) There were many extraneous curves registered due to respiration, fetal movements, etc. Certain typical oscillations seen only in pregnant women were interpreted as "fetal peaks."

Gorter (*Nederland Maand. v. Geneesk.* 1924, 12:565) has published a description of five young children with dextrocardia giving electrocardiographic and X-ray findings. Einthoven discussed the analysis of these cases by the use of two or more galvanometers.

Arillaga (*Comptes Rendus de la Soc. de Biol. Paris* 1924, 91:1065) has published electrocardiographic findings following cervical sympathectomy.

The value of the electrocardiogram in prognosis is discussed by Moffatt (*Med. Clin. No. Amer.* 1924, 7:1677). He emphasizes its importance in patients with degenerative arterial changes, hypertension and myocardial insuffi-

ciency with or without angina. Bloedorn & Roberts (*U. S. Naval Med. Bull.* 1924, 20:423) are in agreement with this. Oppenheimer & Rothschild (*Transac. of Amer. Phys.* 1924, 39:247) have given an analysis of the electrocardiographic findings in cases of myocardial disease. They emphasize the importance of the abnormalities which they consider evidence of "arborization block" and the atypical forms of the R-T interval and T wave. In 92 cases in which they were able to diagnose myocardial disease by these abnormalities 54 percent died in an average of 8 months; but 49 clinically similar cases without these findings had a mortality of only 10 percent. Those dying in the latter group, moreover, had an average length of life of 2 years and 7 months. They, therefore, believe that the electrocardiograph is very valuable in prognosis.

Oppenheimer & Mann (*Proc. Soc. for Exper. Biol. & Med.* 1923, 20:431) have found that in cases of pericardial effusion electrocardiograms show low potential in all leads as a fairly constant diagnostic sign.

Heart Block—A clinical study of complete heart block has been made by Willius (*Ann. Clin. Med.* 1924, 3:129) from observations on 22 cases. 68 percent died an average of 7 months after examination. One case has been under observation for 15 years and has never had Stokes-Adams attacks. Of those with attacks 73 percent have died of heart disease. Stenström (*Acta Med. Scandinav.* 1924, 60:552) has studied incomplete bundle branch block. Horsfall reports a case occurring with flutter. (*M. J. Australia* 1924, 1:251.)

The rare condition of congenital block is illustrated by a case of a 9 months old girl reported by Romberg & White. (*Bost. Med. & Surg. Jour.* 1924, 190:591). Electrocardiogram showed the auricular rate to be 180 and the ventricular rate 70. Leconte (*Bull. de la Soc. Med. des Hopitaux* 1924, 48:488) describes complete block in a 3 year old girl.

Heart block following trauma is an interesting condition, demonstrated in a case of Rosenson (*Am. Jour. Dis. Child.* 1924, 28:594). A boy of 10 received a blow over the precordium and complained of weakness and fluttering of his heart. Electrocardiogram showed varying block (2:1 & 1:1) and abnormal right axis deviation. The heart was essentially negative and the Wassermann was negative. He recovered completely and was well 3 years later.

Pinchin & Gloyne describe a case of A-V

block with additional alternating right and left bundle branch block. (*Lancet*, 1924, 206:66.)

Gager (*Arch. Int. Med.* 1924, 33:449) publishes a report of a case of A-V block occurring with a large pericardial effusion. The block disappeared on removal of the fluid by pericardial tap. He discusses the pressure effects of effusion on the coronary arteries and veins with the local circulatory influences on the conduction system.

Auricular Fibrillation—The mechanism of fibrillation has been fully considered in an excellent paper by Garry (*Physiol. Rev.* 1924, 4:215). Mackenzie (*Brit. Med. Jour.* 1924, 1:1 & 57) also has given his opinions on its production, explaining it as due to the paralysis of the sinus node and the control of the ventricle by the A-V node.

Lewis examined a great number of horses in the army and found auricular fibrillation in only 6 cases. Roos (*Heart*, 1924, 11:1) reports 4 horses and 3 dogs with the condition. It is not rare in horses. The pulse rate may not be increased but may be decreased $\frac{1}{2}$ as in one case he describes. Necropsy showed healthy valves. It is a very rare finding in dogs, whose auricular rate in fibrillation is 1000-1100 per minute.

Dock & Levine (*Am. Jour. Med. Sci.* 1924, 167:664) report 12 cases of regular rhythm with a rate of over 50 occurring in patients with auricular fibrillation under the influence of digitalis without complete block. In 3 cases tested there was no change with vagus pressure or atropine. It was probably a partial block phenomenon.

Wenckebach & Winterberg (*Wien. Arch. f. inn. Med.* 1924, 8:1) discuss disturbances of sinus rhythm occurring after regularization of auricular fibrillation & flutter, especially sinus extrasystoles and sino-auricular block.

Auricular Flutter—Wyekoff (*Med. Clin. No. Amer.* 1924, 8:317) gives a good summary of auricular flutter with 2:1 block and presents typical cases.

Wilson (*Heart* 1924, 11:61) reports a case of flutter in which vagus stimulation increased the rate of the circus movement. He explains this as due to a shortening of the path of the circus wave brought about by reduction in the length of the refractory period of the auricular muscle.

Paroxysmal Tachycardia—Gallavardin has studied the cardiac rhythm in 16 cases of supraventricular paroxysmal tachycardia. (*Arch. Med. du Coeur* 1924, 17:500.) He finds no relation between the type and the total beat, duration and frequency of the paroxysms, or the etiology.

Dieuaidé (*J. Hop. Hosp. Bull.* 1924, 35:329) gives the results of an analysis of respiratory gases in ventricular paroxysmal tachycardia. He finds a definite increase in the oxygen saturation and carbon dioxide content of arterial

blood during the attack. The basal metabolism in one paroxysm was raised 16.7 percent.

Ventricular paroxysmal tachycardia is a relatively rare arrhythmia and as a complication of digitalis therapy has been reported only twice. Reid (*Arch. Int. Med.* 1924, 33:23) discusses 5 cases occurring after digitalis administration in which excessive doses were given. The condition, he says, cannot always be differentiated from the auricular type by electrocardiogram. He reports a case of ventricular fibrillation following ectopic ventricular tachycardia. It is the first case proved by electrocardiogram, which was taken during death. (*Bost. Med. & Surg. Jour.* 1924, 190:686).

Porter (*Am. Jour. Med. Sci.* 1924, 167:821) gives an account of a case of ventricular paroxysmal tachycardia lasting 153 hours with recovery of normal rhythm in a man of 46 with probable coronary occlusion.

An effort to discover the prognostic significance of paroxysmal tachycardia has been attempted by Willius & Barnes (*Bost. Med. & Surg. Jour.* 1924, 191:666). They followed 84 cases of which 59 percent were males. The greatest number were in the 6th decade. Cases with vertigo or pain were mainly those with associated arterial changes. 36 of 58 were still having attacks. 25 out of 85 had died, only 20 of cardiac disease. Of 48 with minimal or no cardiac findings 10 percent had died of heart disease; of 36 with definite cardiac lesions 42 percent had died. The prognosis depended largely on the type and degree of underlying cardiac damage. The statistics were based on a 10 year period.

Extrasystoles—Barker (*Ann. Clin. Med.* 1924, 2:371) analysed the cases of extrasystoles for 8 years at Barnes Hospital. The mortality of all medical cases was 6 percent. Of patients with extrasystoles alone 20 percent had died; of those with extrasystoles and other signs of heart disease 37.5 percent were dead. He concludes that among hospital cases extrasystoles are an unfavorable prognostic sign. Schultze (*Deutsch. med. Wochenschr.* 1924, 50:1357) gives a more hopeful outlook by saying that Erb observed premature beats in himself at the age of 29 which lasted for 27 years. Then for 7 years he had attacks of tachycardia which, however, did not prevent him from mountain climbing. After that he had only rare premature beats and survived a gall bladder operation at 70, only to die at 83 from infectious enteritis.

Smith (*Ann. Clin. Med.* 1924, 3:385) in a study of 100 cases with extrasystoles seen in office practice decides that the myocardium is not impaired in any manner by the extrasystole, and that this condition can be found in the majority of people if looked for carefully.

VII. OTHER METHODS AND TESTS

Exercise Tests—Exercise tests are falling into disuse to a considerable extent as measures of

cardiac efficiency. Epstein (*Arch. Pediat.* 1924, 41:625) expresses the general feeling at present that formal tests for children are less accurate than the daily requirements of ordinary life. He says that a child normally rests, walks, climbs stairs, and does moderate running. He has used an index based on the ability of cardiac children to perform these activities without symptoms which expresses the child's cardiac efficiency. Propst (*Jour. Am. Med. Assoc.* 1924, 82:2102) found in 100 cases of organic heart disease that only 3 percent reacted to exercise by an abnormal blood pressure test and concludes that it has little prognostic value. He believes a tardy return of the pulse rate to normal is a somewhat better indication of abnormality. Blumgart (*Heart* 1924, 11:49) finds that in auricular fibrillation exercise causes a disproportionate rise in ventricular rate with a delayed return to normal. This delayed return is not due to the fibrillation as it also occurs when these hearts have normal rhythm as is shown by a study of 5 cases treated with quinidine. It is similar to the effort syndrome mechanism. Digitalis in ordinary doses fails to protect the ventricle from this exaggerated response to exercise. In auricular fibrillation when the ventricular rate rises with exercise, the auricular rate generally falls.

In a study of the circulatory response to exercise in man, White (*Am. Jour. Physiol.* 1924, 69:410) concluded that the heart muscle during rest possesses tone which undergoes little or no change with light exercise and in the early part of heavy exercise. After several minutes of heavy exercise the tone decreases permitting more efficient filling of the heart. A high temperature of the environment facilitates loss of tone. On cessation of exercise the resting tone rapidly returns.

New Instruments—The multiple electric stethoscope was demonstrated at the annual meeting of the American Medical Association in Chicago and is reported by Gamble (*Jour. Am. Med. Assoc.* 1924, 83:16). This instrument magnifies the heart sounds by means of audition tubes and allows an indefinite number of observers to listen to heart and lung sounds either with individual microphones or by means of a radio "loud speaker." The new machine is equipped with differential tubes or "filters" to allow the amplification of either high or low tones.

A very delicate instrument for the study of sounds, especially those of the heart, has been devised by Einthoven and Hoogervorst (*Arch. f. d. ges. Physiol.* 1924, 204:275). It employs the fiber of the string galvanometer and is called the "string phonograph." This fiber is only 15 mm. long and weighs 2×10^{-10} gm. and has an exceedingly rapid vibration period. It is suspended between microphones and minimal air currents cause it to vibrate and record photographically.

Waud (*Jour. Am. Med. Assoc.* 1924, 82:1263) describes an electric polygraph which gives an increased amplitude of the pulse waves, making their interpretation more simple.

Miscellaneous—The use of metabolism determinations in heart disease is suggested by the findings of Gessler (*Deutsch. Arch. f. Klin. Med.* 1924, 144:188) who states that in 7 patients with chronic infectious endocarditis the basal rate was increased as much as +43 percent, even in periods of normal temperature.

Fossier (*Jour. Am. Med. Assoc.* 1924, 82:2016) uses the length of a line from the junction of the inner side of the clenched right hand and wrist and ending at the middle joint of the 4th finger, as indicating the normal transverse diameter of the heart. In 257 soldiers, whose hearts were percussed in the standing position, this relationship was accurate. He considers this the only constant and practical standard.

Frost (*Bost. M. & S. Jour.* 1924, 191:853) uses a new type of respiratory test in connection with blood pressure determinations in an attempt to separate "good risks from bad" for life insurance, in the group of apparently healthy individuals who present indefinite physical findings mainly of the effort syndrome type.

VIII. PROGNOSIS

A recent review of 463 cases of aortic regurgitation has been made by Willius & Fitzpatrick (*Med. Jour. & Rec.* 1924, 120:417) with the idea of determining the life expectancy. 296 were nonsyphilitic and 167 were syphilitic. Of the former group the cardiac mortality was 39 percent and of the latter 46 percent. The observations covered 8 years. In the electrocardiographic grouping it was found that the cardiac mortality with T wave negativity in Leads 2 & 3 was (a) nonsyphilitic 44 percent; (b) syphilitic 64 percent.

Thormeyer has published statistics on prognosis on a study of 122 cases of heart disease with exact history and necropsy findings. (*Med. Klin.* 1924, 20:1612.) The average time of compensation was over 33½ years when the rheumatism had been acquired between the ages of 1 and 20 years. It was 14½ years in patients with rheumatism between 21 and 30, and only 5 6/10 years if they had acquired it between 31 and 40. The interval between syphilitic infection and decompensation averaged 25½ years.

Norris (*Am. Jour. Med. Sci.* 1924, 168:781) has recently discussed the prognosis of organic heart disease and emphasizes the fact that the factors causing decompensation are the factors causing death. In decreasing importance they are (1) infection, (2) arteriosclerosis, (3) change of rhythm, (4) toxemia.

IX. TREATMENT

1. MEDICAL. a. **Drug Therapy.** (1) **Experimental.** Wedd (*Heart* 1924, 11:87) has

experimented on the action of certain drugs in auricular flutter. He finds the effects of digitalis variable due to the complexity of action. After atropine the auricular rate may rise or fall. Quinidine produces a fall of auricular rate, the ventricular rate tends to maintain 2:1 rhythm. He suggests that in treating flutter the production of fibrillation be avoided by combining digitalis and quinidine.

Cohn & Stewart (*Jour. Clin. Invest.* 1924, 1:97) have investigated the evidence in regard to the effect of digitalis on the contraction of the heart in man and studied the action of the heart by means of X-ray. There was an increase of the height of left ventricular excursion in every case under the influence of digitalis.

Mendenhall & Camp (*Bost. Med. & Surg. Jour.* 1924, 190:312) have done a useful piece of work in testing the effects of acetylsalicylic acid on cardiac irritability in cats and frogs.

"1. Acetylsalicylic acid has a stimulant effect upon the heart muscle as indicated by a lowering of its threshold upon electrical stimulation.

2. The stimulating effect of acetylsalicylic acid is directly upon the heart muscle and is not due to paralysis or inhibition of the vagus mechanism.

3. The drug is depressant to the heart muscle only in concentrations much higher than are likely to occur even in enormous doses of the drug."

The conclusions add weight to the belief that aspirin never produces the cardiac depression attributed to it by the laity.

The controversial point of the effect of alcohol on the heart has new data added to it. Sulzer (*Heart* 1924, 11:141) finds that alcohol shows no stimulating effect on the isolated mammalian heart in any doses. Its effect in syncope is by local irritation. In a concentration of 0.1-0.2 percent it causes coronary constriction and reduces coronary flow.

Rudolf & Bulmer (*Am. Jour. Med. Sci.* 1924, 168:641) discuss the cardiac action of atropine. In small doses (1/100 grain) it acts to slow the heart by vagal stimulation. In large doses it speeds it by vagal paralysis. In moderate doses these actions often balance and no cardiac effect is noted.

Reid (*Bost. Med. & Surg. Jour.* 1924, 191:1153) has investigated the influence of tartar emetic on the heart. It was formerly used as a circulatory sedative. In cases of fibrillation and ventricular premature beats, neither irregularity was abolished.

Ephedrine, the active principle of the Chinese drug Ma Huang, has been studied by Chen & Schmidt (*Jour. Pharm. & Exper. Ther.* 1924, 24:339). It may prove useful, as it acts like epinephrin but lasts longer and is effective by mouth.

Heitz (*Arch. d. mal. du Coeur* 1924, 17:578) finds that workmen industrially exposed to

nitroglycerine rapidly become habituated. There is considerable individual variation in susceptibility which is increased by alcoholism and heat. The vascular changes are transitory. This is a slight lowering of blood pressure especially the diastolic.

(2) *Clinical—Digitalis.* The mode of administration of digitalis preparations has been carefully considered during the past year. Clarke (*Am. Jour. Med. Sci.* 1924, 168:201) noted the relative effect of digifolin given in various ways. An average pulse slowing was obtained, when given intravenously, in 3-4 hours; in 4 hours intramuscularly; and in 6 hours when it was given by mouth. 50 percent larger dose is necessary by mouth. Levy studied rectal digitalis therapy (*Arch. Int. Med.* 1924, 33:742) and found it entirely satisfactory. He used an aqueous solution of the purified extract in cases with vomiting or nausea, or after surgical operations. A report to the Council of Pharmacy of the American Medical Association by Robinson, White, Eggleston, and Hatcher advised oral administration of digitalis except in very rare emergencies when relief is needed in 2 hours. Careful intramuscular or intravenous injections of strophanthin or crystallized ovabain can be used at such times. These should be kept in hard glass ampoules in buffered solution. Proprietary preparations of digitalis have no advantages over the powdered leaf. The results of a symposium on the real value of strophanthin as a cardiac remedy, including the opinions of Albutt, Mackenzie, Brooks, Schott, Moffitt, Heard, Thayer, White, and Herrick were also published in the past year. They concluded that it had decreased in popularity in the past 10 years, and that emergencies calling for it were rare at present. Digitalis was more satisfactory and equally efficient. (*Ther. Gaz.* 1924, 40:153.)

Luten (*Arch. Int. Med.* 1924, 33:251) has given massive doses of digitalis to patients with normal rhythm and finds it useful in the "myocardial insufficiency" group.

Bishop (*Med. Jour. & Rec.* 1924, 119:64) reports a case of mitral disease with fibrillation who has taken digitalis continuously for 36 years and has never been decompensated.

Quinidine—An instructive report on the value of quinidine was compiled from the experiences of the members of the Cardiac Club in England (*Lancet* 1924, 207:543). The groups of cases were (1) auricular fibrillation and valvular disease of the heart, 166; (2) auricular fibrillation but no valvular heart disease, 87; (3) thyrotoxic cases and Graves disease, 12. In most successful cases the total dose was small, 1-3 grams. At times massive doses succeeded where smaller ones failed. Group (1) showed 78 complete failures, 42 temporary successes and 46 permanent successes; group (2) 28 complete failures, 24 temporary successes, and 35

permanent successes; group (3) 3 complete failures, 1 temporary success and 8 permanent successes. 286 cases had major and minor toxic symptoms, 8 died suddenly (1 not due to quinidine) and 7 had embolism. Unsuitable cases were (1) badly damaged hearts of long standing with undoubted failure of compensation, (2) those with history of angina ceasing with fibrillation, (3) those with an idiosyncrasy, (4) those with history of embolism. There was a growing tendency to select cases. There was some difference of opinion as to the degree of improvement from quinidine. All agreed on its value in thyroid cases not relieved by partial thyroidectomy.

Small series of quinidine cases have been reported by Neuhofer (*Med. Jour. & Rec.* 1924, 120:78), Wyckoff & Ginsberg (*Bost. Med. & Surg. Jour.* 1924, 190:771) and Kahn & Wilensky (*Med. Jour. & Rec.* 1924, 119:403). Carr (*Ill. Med. Jour.* 1924, 381:445) reports a series of 83 cases treated with quinidine and describes the various untoward effects. Bullrich describes a case of collapse with recovery (*Sem. Med.* 1924, 31:850). Musser (*Ann. Clin. Med.* 1924, 2:209) finds quinidine useful in extrasystolic arrhythmia and paroxysmal tachycardia, but harmful in heart block and alternation.

Camphor—In spite of several favorable foreign reports it would seem that the value of camphor-in-oil as a cardiac stimulant had been disproved. Marvin and Soifer (*Jour. Am. Med. Assoc.* 1924, 83:2) gave it to 14 cases with advanced congestive failure and to 2 normals in doses of 9-45 grains. No evidence was obtained that it had any action on heart rate, respiration, blood pressure, vital capacity, electrocardiogram or general clinical condition of the patient. Stine (*Missouri St. M. Assoc. Jour.* 1924, 21:363) uses it in pneumonia. In doses of 150 grains it is not a heart stimulant, but he believes it useful as a vasomotor stimulant, to increase urine and sweat production.

Epinephrin—The use of intracardiac adrenalin has been frequently reported during the year. Petit-Dutaillis (*Paris Med.* 1924, July 5:30) added one case to 33 in the literature. Resuscitation was complete in 51.9 percent of the cases. Koch (*Zentral für Gynäk.* 1924, 48:2234) gave it in the case of an asphyxiated newborn infant 5-6 minutes after the heart stopped with successful result. Parkinson & Bain (*Lancet* 1924, 2:311) report the use of epinephrin in a case of temporary heart block with Stokes-Adams attacks with relief during the period of recovery in conduction.

Miscellaneous—Boots & Miller (*Jour. Am. Med. Assoc.* 1924, 82:1028) describe gratifying results in the use of neo-cinchophen in rheumatic fever. Fohr (*Deutsch. med. Wchnschr.* 1924, 50:581) says that intraspinal injections of the patient's own serum are of no value in chorea. Benzyl benzoate gave relief in 6 out of 20 cases of angina in Babcock's series. (*Jour. Am. Med.*

Assoc. 1924, 82:193). It was useless in luetic aortitis. Brunn had good results in the use of intravenous pituitary extracts in asthma and cardiac dyspnea (*Med. Klin.* 1924, 20:1497).

Very little hope in the therapy of bacterial endocarditis has been advanced. Intravenous mercurochrome has been found valueless against the streptococcus viridans. Wordley (*Lancet* 1924, 2:219) reports a case cured, he claims, by immuno-transfusion. (Method of Colebrook & Storer, *Lancet* 1923, 2:1341). The blood cultures were always negative however.

Calcium chloride has been found of value in nephritic edema by Keith, Barris & Whelan (*Jour. Am. Med. Assoc.* 1924, 83:9) and by Rockwood & Barrier (*Arch. Int. Med.* 1924, 33:643). In work soon to be published, Segall & White found calcium chloride effective as a diuretic in certain cases of edema in cardiac failure and that its action is apparently always associated with acidosis. No effect was produced in pleural and pericardial effusions of infectious origin. Petzetakis (*Compt. Rend. de la Soc. de Biol.* 1924, 91:645) and others use it intravenously as a cardiac tonic. Addison (*Can. Med. Assoc. Jour.* 1924, 14:1059) reports 14 cases of hypertension in which 180 grains daily by mouth markedly lowered the blood pressure.

"Novarsurol" seems to have a place in the treatment of edema. Neuhofer (*Ther. Gaz.* 1924, 40:17) has used it intramuscularly in marked congestive failure. It is a mercurial preparation (33 percent mercury) and contraindicated in acute nephritis or enteritis. He reports 8 cases.

The use of intravenous glucose and insulin in failing hearts is suggested by Pick (*Klin. Wchnschr.* 1924, 3:662) on the basis of perfusion experiments.

Willius (*Can. Med. Assoc. Jour.* 1924, 14:1072) discusses the use of thyroid preparations in the treatment of Stokes-Adams syndrome.

b. **Other Medical Therapy**—Oppenheimer (*Jour. Am. Med. Assoc.* 1924, 82:1685) has had good results from the use of therapeutic pneumopericardium in pericardial effusion. Injection of air gives greater relief than aspiration of the fluid alone. The air prevents adhesions and postpones reaccumulation of the exudate.

The treatment of cardiac neurosis is discussed by Peabody (*Northwest Med.* 1924, 23:103). He stresses mental hygiene and physical development with regularity of life. Schwab (*Med. Clin. No. Amer.* 1924, 7:1461) outlines the pathogenesis of the nervous heart and gives treatment from a psychiatric point of view. Hunt (*Lancet*, 1924, 1:717) also lays down rules of therapy.

2. **SURGICAL**. The encroachment of surgery upon the domain of cardiology has become rapidly more definite during 1924. The outstanding progress has been in the operations of cervical sympathectomy and mitralotomy. The

value of the former procedure is still under discussion but it is being tried in many places. Sir James Mackenzie (*Lancet* 1924, 2:695) came out definitely in opposition to it on the basis of the lack of knowledge of the physiology of the cardiac nerves and because the operation removes the pain, which he considered a valuable danger signal against overstrain of the heart. Danielopolu (*Brit. Med. Jour.* 1924, 2:553) believes that the pain arises in the myocardium of the left ventricle and is caused by the accumulation of toxic substances, due to faulty circulation, which irritate sensory nerves. Even in the absence of pain these stimuli set up reflex mechanisms along pressor and depressor fibers which increase the work of the heart. He advises closure of these sensory pathways by sympathectomy. Just what nerves should be cut or what ganglia extirpated is still a problem. The physiology is discussed by Langley (*Lancet* 1924, 2:955), Odermatt (*Schweiz. Med. Wchnschr.* 1924, 54:56), Brown & Coffey (*Arch. Int. Med.* 1924, 34:417), Holmes & Ranson (*Jour. Lab. & Clin. Med.* 1924, 10:183) and others.

Ormos (*Deutsch. Med. Wchnschr.* 1924, 50:1640) has suggested a new line of investigation by studying the cervical sympathetic ganglia in three fatal cases of angina pectoris. He found pigmentation and degeneration of the cells. The coronary arteries were intact in one of them and only slightly sclerotic in another.

There is a possibility that the resection of the sensory pathways from the heart may result not only in preventing the pain stimuli from reaching the sensorium, but may also act to remove the reflex mechanisms which are responsible for the attacks. Such mechanisms may be in the nature of coronary spasm, and the variable results obtained by different operators may be due, in part at least, to the relative amounts of spasm and structural change in the coronary vessels. This view is opposed to the belief of Mackenzie that the operation merely relieves the pain, but it helps to explain the successful results which are being frequently reported.

Ransahoff (*Paper at the Western Surgical Assoc. meeting*, Dec. 4-6, 1924) gives the indications for the operation. He believes it justified in cases of severe angina uncontrolled by medical treatment, and says that the younger the patient and the more severe the attacks the more urgent is the operation. He reports 2 cases of left cervicosympathectomy with cure.

Jonnesco (*Presse Med.* 1924, 32:138) publishes an account of 6 cases with 3 deaths and 3 complete recoveries.

Brown & Coffey (*Arch. Int. Med.* 1924, 34:417) have added 9 new cases (total of 16 with 2 deaths and 14 cases with relief of their main symptoms). They cut the left superior thoracic branch of the cervical sympathetic and the main trunk below the ganglion. Reid & Friedlander (*Jour. Amer. Med. Assoc.* 1924, 83:2)

operated on two cases. One was successful in which all the cervical and the first thoracic ganglia were removed. The other died suddenly without pain, on exertion 2 weeks after the operation. Smith & McClure operated on both sides of the neck in two cases. (*Surg. Gyn. & Ob.* 1924, 39:210). Both had relief from the number and severity of attacks. There was not complete relief until the 1st thoracic ganglion was removed. Kappis (*Med. Klin.* 1923, 19:1658) reports that in his cases all methods gave good results except in one case in which he removed all of the left cervical sympathetic and the 1st thoracic ganglion with only temporary relief. Pain in the left arm, however, subsided entirely. Single case reports have been published by Kohler & von der Weth (*Ztschr. f. Klin. Med.* 1924, 99:205), Holmes & Ranson (*Jour. Lab. & Clin. Med.* 1924, 10:183), Halstead & Christopher (*Jour. Am. Med. Assoc.* 1924, 82:1661) and Lewit (*Zentral. f. Chir.* 1924, 51:2529).

In addition to cervical sympathectomy for angina Glaser (*Med. Klin.* 1924, 20:477) discusses its use in the treatment of bronchial asthma, and Leriche (*Lyon Chir.* 1924, 21:39) considers removal of the left stellate ganglion in paroxysmal tachycardia.

Surgical approach to the mitral valve has been extensively studied in the past two years by animal experiments and clinical work. Goodall & Rogers (*Am. Jour. Surg.* 1924, 38:108) discussed some of the problems of mitralotomy and the relative ease of ventricular and auricular routes, favoring the latter. Allen devised a cardioscope for direct vision of the mitral leaflets and also favors the approach through the left auricular appendage. He published the results of experiments on dogs (*Arch. Surg.* 1924, 8:317) showing that the heart muscle heals rapidly and that the split valve does not heal together.

The most important work in this field has been done by Cutler, Levine and Beck. They published a monograph on the historical, theoretical and practical aspects of operation on the mitral valve (*Arch. Surg.* 1924, 9:689). Their problem was the relief of the crippling symptoms due to marked mitral stenosis. Animal experimentation was very extensive. They finally chose the ventricular route of approach, after mapping out certain dangerous points or "vital areas" to be avoided. A new instrument or cardiovalvulotome was invented by Cutler & Beck (*Jour. Exper. Med.* 1924, 40:375) for cutting the fibrous or calcareous mitral ring, and the technique was carefully studied. Certain clinical cases were considered suitable for mitralotomy. These were cases of marked mitral stenosis, uncomplicated by adherent pericardium, but in whom the valve lesion was causing incapacitating symptoms or would probably cause death within a few months or years. Four of such cases were operated on

with 1 very satisfactory recovery and 3 deaths (1 from postoperative pulmonary complications). These cases are the first of their kind which have ever had surgical intervention and it is hoped that the future offers a good chance of relief for other carefully selected cases.

The improvement which surgery affords to cases of adherent pericardium by the operation of cardiolytic has been reviewed by Bourne (*Quart. Jour. Med.* 1924, 17:179). The operation is definitely satisfactory and has a very low mortality. He gives the essential points in diagnosis of adherent pericardium and includes the electrocardiograph and X-ray as aids. There are only 25 cases in the literature, to which he adds 2 cases which are living and well 2½ and 2 years after operation. Marvin & Harvey (*Jour. Amer. Med. Assoc.* 1924, 82:1507) add one case to the 5 which have been reported in this country.

Among the cases of embolotomy is one by Olivercrona (*Acta Chirurg. Scandin.* 1924, 57:411) who successfully operated twice in 14 months on the same patient for embolism of the femoral artery.

Von Hoesslin & Klapp (*Klin. Wehnschr.* 1924, 3:1211) successfully resected the right vagus nerve in a woman with pain in the pharynx, following tonsillectomy, associated with oppression in the region of the heart, bradycardia and syncope.

X. PREVENTION AND THE SOCIAL ASPECTS OF HEART DISEASE

The movement for the prevention of heart disease is slowly gaining momentum. The analogy between the tuberculosis problem and its solution by preventive measures, and the problem of heart disease is being presented to social and political agencies. The growing mortality rate from heart disease is being stressed by insurance statistics and census figures. Several papers have appeared on the subject. Poynton (*Lancet* 1924, 2:1000) in England has considered the local conditions and asks especially that means be provided for convalescent hospitals for cardiac children where they can continue their education. Meakins (*Lancet* 1924, 1:835) makes a plea for the early regulation of the lives of these children in order to conserve their cardiac reserve. Bartley (*L. I. Med. Jour.* 1924, 18:47) lays emphasis on a longer convalescence after colds, influenza, pneumonia and tonsillitis.

Useful statistics have been compiled by Kaiser (*Jour. Am. Med. Assoc.* 1924, 88:33) on the influence of tonsillectomy on 1200 children in Rochester, N. Y. Among other things he concludes that the incidence of diphtheria is lessened, but not that of chorea or rheumatism. However, for a 3 year period, there has been a lessened incidence of heart disease. Doull (*Pub. Health Report* 1924, 39:1833) finds that tonsillectomized children are distinctly less lia-

ble to contract diphtheria than others of the same age. No such protection is secured against scarlet fever by tonsillectomy.

A complete program toward the prevention of heart disease has been given by Hamburger (*Med. Clin. No. Am.* 1924, 8:631). This includes the reasons for the campaign, the life cycle of the disease, the methods for prevention of the original involvement of the heart, the prevention of the original myocardial failure, and the paths and agencies for disseminating propaganda. Peters (*Ohio State M. J.* 1924, 20:154) gives the work of the National Association.

The industrial aspects of heart disease are discussed by Lincoln (*Jour. Indust. Hygiene* 1924, 6:1). She believes that the research at the Massachusetts General Hospital has shown that cardiac patients can and should work and that educational and vocational guidance will help to fit these patients into suitable positions and protect both the cardiac and his employer.

Russell's work at the Massachusetts General Hospital on the medico-social aspect of heart disease is a valuable contribution (*Bost. Med. & Surg. Jour.* 1924, 191:573 ff.). A practical plan of campaign including social agencies and medical supervision is given. The use of Cardiac Clinics is considered and the advisability of co-operation between social agencies, boards of education, and the various suitable industries.

RECENT SMALLPOX WARNINGS

DR. WILLIAM L. SOMERSET, Assistant Director of the Bureau of Preventable Diseases, and Chief Diagnostician, New York City, has made the following timely comments based on certain recent experiences:

Smallpox has a variety of names, each with its own shades of meaning; i. e., variola vera; varioloid; variola modifcata, and alastrim. Variola vera is unmodified smallpox, always severe and with a high death rate; in this form the eruption may be discrete, confluent or hemorrhagic. Varioloid is smallpox modified by vaccination. Here the eruption is usually discrete with comparatively few lesions. It may be confluent on the face. In either case, the lesions in varioloid are superficial, the attack is mild and uncomplicated. Variola modifcata is clinically the same as varioloid, but with no history of previous vaccination. Alastrim is a variety of smallpox usually seen in colored subjects in the West Indies, but occasionally in New York City. It is characterized by an initial eruption of small pustules, usually arranged in variously sized groups. These small pustules bear no resemblance whatever to typical smallpox lesions. We seldom see variola vera in New York City.—*City of N. Y. Dept. of Health—Weekly Bulletin.*

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN
WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY

RICHARD C. CABOT, M.D., AND HUGH CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 11191

MEDICAL DEPARTMENT

A janitor of forty-three entered July 21 complaining of dyspnea and weakness. His mother died of heart disease. Until the past three years he had used a great deal of alcohol and until recently much tobacco. He had tonsillitis when young, gonorrhea at twenty-one and again at thirty, and "rheumatism" in the right shoulder at twenty-seven. In general he had always been well and strong until the present illness and had done much heavy work until the past ten years.

Three years before admission he had gradual onset of dyspnea, marked pain on exertion and general weakness after a day's work, and raised one or two ounces of thick brownish material every morning. In September, three years before admission, he was treated at a Boston hospital with relief. A year later the symptoms returned, with marked swelling of the legs, palpitation, and cough with white sputum. After a month in another hospital he felt that he was a well man. Five months before admission he had a cold followed by the old symptoms. For the past few months he had done light work. The May before admission he was in a hospital for two weeks with much relief. He now had return of the symptoms.

Examination showed him to be well nourished. The apex impulse of the heart was not felt. The left border of dullness was made out under the sixth rib 13.5 cm. from midsternum. The right border was at the right sternal margin. The action was regular. There was a loud blowing diastolic murmur, loudest over the third left chondrosternal articulation, transmitted to the neck, a soft systolic murmur at the apex transmitted into the axilla, and a soft presystolic (Flint ?). The aortic second sound was replaced by the murmur. The pulmonic second sound was just audible. There was Corrigan pulse, capillary pulse, and faint pistol shot in the groins. The liver dullness extended from the sixth rib to 2 cm. below the costal margin. There was some tenderness upon deep pressure. The abdominal and plantar reflexes were lively, the cremasteric and patellar reflexes not ob-

tained. The pupils were normal. The lower legs showed varicose veins and slight edema. He passed 12 to 82 ounces of urine daily, specific gravity 1.012 to 1.025; it showed one half per cent. to the slightest possible trace of albumin at all of five examinations, rare to occasional red blood corpuscles at the first four, a few to occasional leucocytes at all. The hemoglobin was 80 per cent. The leucocyte count fell from 19,400 at entrance to 15,800 August 4. The sputum was blood-streaked at one of two examinations and showed numerous pneumococci; no tubercle bacilli.

During the first ten days in the hospital the patient's temperature was 96.9° to 99.9°. After August 1 it was essentially normal. The pulse for the first nine days was 83 to 120, afterwards 71 to 91. The respirations were 20 to 32. He passed poor nights, could not sleep soundly without hypnotics, and often started up suddenly from sleep in dyspnea, cardiac distress and coughing. A few crackles were heard at the bases of the lungs. August 1 after taking digitalis he seemed much better. The amount of urine was increased, the albumin almost gone. He had no more attacks of coughing or dyspnea and no more vomiting. He ate and slept well and made steady improvement. August 12 he was discharged much relieved to a convalescent home, where he remained four weeks with no improvement. After the first five days the dyspnea increased and he did not sleep well. He was given medicine and left in better condition, able to walk about the streets and to sleep on his side.

In September he became worse, and September 21 went to a Boston hospital where he remained two weeks, leaving in better condition. After working for ten nights as assistant registrar of a ward he had a return of weakness, dyspnea and cough with vomiting. He re-entered the hospital and remained there until the third week in December, when he could walk about and sleep on his back. During the next two weeks the dyspnea grew steadily worse. He had slight cough and vomited five or six times. He had some nausea. Sudden attacks of dyspnea twice caused him to fall. These attacks were frequently brought on by urination. He could sleep only sitting up. His legs and genitals were edematous.

He reentered the Massachusetts General Hospital January 6. Examination showed him fairly well nourished, with labored respiration and some pallor of the skin and mucous membranes and a somewhat anxious expression. The apex impulse of the heart was very diffuse. The left border of dullness was 3½ cm. outside the nipple line at the sixth rib and 13 cm. to the left of the midsternum. The right border was 7 cm. to the right in the third space and 5 cm. in the second space. The action was regular.

Over the precordia was a loud diastolic murmur, loudest in the third space just to the left of the sternum. In the second right space was a soft systolic murmur transmitted to the neck. At the apex was another systolic murmur transmitted into the axilla. The pulses were as before, with visible pulsation in the vessels of the neck and arms. The artery walls were palpable. At the bases of both lungs there was slight dullness with a few moist râles and diminished voice, fremitus and breathing. The abdomen was slightly distended, with slight shifting dullness in the flanks. The splenic dullness was slightly increased, and the liver dullness extended three centimeters below the costal margin; neither edge was felt. The reflexes were normal. The pupils reacted sluggishly to light and accommodation. There was extensive edema of the legs, thighs, back, genitals, hands and forearms. The legs showed erythematous patches.

During his three months' stay in the hospital there were three periods of slight elevation of temperature, January 29-31 99.4°-99.9°, March 10-24 98°-100°, March 29-31 98.1°-99.5°. There was one period of higher elevation, February 5-12, 99.3°-102.6°, followed by a period of subnormal temperature, 96°-98° February 13-25. The pulse was 65 to 120, the respirations 18 to 45. There was a period of diuresis from January 14 to February 9 culminating in a total output of 224 ounces January 30. During the rest of his stay the output was normal. The specific gravity was 1.015-1.028. Thirteen examinations all showed albumin, from a trace to one-sixth per cent. The last nine examinations beginning January 24 all showed leucocytes and red blood corpuscles, increasing in numbers after the first of March. The hemoglobin was 90 per cent., the leucocyte count normal at admission, 14,300 February 7.

The patient was much troubled at first with attacks of dyspnea and was obliged to sleep in a chair. The dyspnea and edema steadily decreased, and the heart sounds grew stronger. By the 15th of January he was able to sleep with morphia. January 17 the left lower back, axilla and front chest showed flatness, absence of breathing and of tactile and vocal fremitus. Two canulas were inserted into the subcutaneous tissue of each leg, and in two days fifty-six ounces of fluid was drained away; also about nine ounces of blood-colored fluid was withdrawn by small puncture wounds in the serotum. January 28 he showed decided improvement and was able to spend the night in bed. The heart sounds were rather distant and of fair quality. The right border of the heart was 5 cm. from midsternum in the third space, the left border and murmurs as at entrance except that the systolic murmur in the second right space was only faintly heard. With the

diuresis the edema markedly decreased and by February 7 was almost gone. There was inflammation about the opening in the right leg where the canulas had been inserted. The area was incised and drained with the withdrawal of two ounces of pus. There was a slightly tender enlarged gland in the right groin. That evening the temperature shot up to 104°, the patient vomited occasionally, and had poor appetite. Culture from the wound showed *Staphylococcus aureus*. An erythematous area about the wound persisted. February 19 the condition of the leg was greatly improved. With the period of subnormal temperature beginning February 13 the dyspnea and edema returned. February 25 he seemed somewhat better and was advised to go to the Long Island Hospital, but decided to go home.

On returning home he made no extra exertion and followed the directions given him. That evening he was seized with a sudden attack of dyspnea and was brought back to the ward in a condition of partial collapse, with severe dyspnea. He continued to have two or three attacks of dyspnea daily, relieved by nitroglycerin. The edema in his legs and hands increased. He slowly failed, became very emaciated, and beginning March 4 was very delirious at times. He grew very weak. March 10 he had Cheyne-Stokes respiration. For two weeks beginning March 13 he showed considerable improvement, had less edema and dyspnea and was fairly comfortable. March 30 he had considerable nausea. April 1 he had a severe attack of dyspnea and very irregular pulse and heart action, and during the day and night had several more such attacks. Both backs showed many moist râles and slight dullness. He grew steadily worse, and April 10 died.

DISCUSSION

BY DR. RICHARD C. CABOT

NOTES ON THE HISTORY

With a man who has had gonorrhea twice and who has a "rheumatism" in one joint we suspect that it is a gonorrhreal arthritis.

Ten years ago he was only thirty-three; a man who had worked hard only till thirty-three would not think he had much health.

We do not know where the pain is.

The chances are that this illness five months before he entered the hospital was not a "cold" but the passive congestion of the heart failure itself with a cough which was mistaken for an infection.

The characteristic of this history is a series of breaks of cardiac compensation. Four or five times his heart has given out and he has had to go to a hospital and rest. This began apparently at an age when either syphilitic aortitis or rheumatic trouble is the usual cause of heart

symptoms. Those two are in our minds as the most probable of the causes.

NOTES ON THE PHYSICAL EXAMINATION

Let us sum up the examination. Presumably the heart is enlarged. He has an aortic valve lesion involving regurgitation. We do not know whether it is the syphilitic or the rheumatic type of aortic regurgitation. No thrill is recorded, which is a sign we need for any certain diagnosis of the rheumatic type of aortic disease.

It is unusual for dyspnea to cause one to fall. Unless there is difficulty of urination it is hard to see how it could have been brought on by urination. Dyspnea is often brought on by defecation, by straining at stool, but unless he is straining to pass his urine one does not see why it should make him dyspneic.

If these measurements are right they show a very much enlarged heart.

There are evidences of passive congestion of the lungs and of ascites.

He was three times in the hospital and all the elevations of temperature are slight.

His kidneys were all right. We could hardly get such an output and such a swing in gravity if there was anything wrong with the kidneys. I do not think the red corpuscles are of any importance, in a man of his age and habits.

He has fluid in his chest.

The procedure of January 17 is one which I do not believe is much used nowadays in a hospital. As we see they got fifty-six ounces of fluid this time. But it always gets infected. We can't help it.

A HOUSE OFFICER: We sometimes make incisions.

DR. CABOT: That is essentially the same thing, and I suppose a little less likely to be infected.

The enlarged gland in the right groin was presumably the result of the inflammation.

The only place we could think of to send him was a chronic hospital.

DIFFERENTIAL DIAGNOSIS

I take it that we have no record of a Wassermann test. I do not believe we had begun to take it at that time. Of course what we should like to know as much as anything is; is there any good evidence of syphilis in this case? He certainly has aortic regurgitation, and that is the only thing we can be sure of. We have not any good rheumatic history. He is the type of man who often gets syphilitic, that is, he is an alcoholic who has had gonorrhea twice. There is a good chance, but we have no definite evidence. There was a time when his pupils did not act well, but that has not persisted. I do not see that we can say we have any positive evidence of syphilis on the physical side.

The type of pulse and arterial phenomena go well with syphilitic aortitis, because it is in that disease that we get regurgitation without stenosis. Stenosis at the aortic valve keeps the Corrigan from developing because the blood cannot suddenly get out and suddenly distend the other arteries. So that when we see a typical Corrigan pulse we are influenced in favor of its being a pure aortic regurgitation without stenosis, and that is in favor of syphilis. The murmurs go perfectly well with either type of disease, rheumatic or syphilitic. There is no thrill, which, as I have said, is rather against the rheumatic type.

A PHYSICIAN: What kind of thrill?

DR. CABOT: I mean a systolic thrill in the second right interspace, which with aortic stenosis is the rule. So I am arguing from the absence of that against the rheumatic or stenotic type of disease. But we really have very little evidence. I am using the few straws of evidence we have to decide the question between rheumatism and syphilis, because we have so little. I am quite uncertain as to what will be shown.

Aside from this lesion on the aortic valve, which can perfectly well be either syphilitic or rheumatic, what ought we to find here? We ought to have a big heart, especially a big left ventricle. It should weigh towards 800 or 900 grams. We ought to have passive congestion of all the organs, and so far as I see nothing else. That is, we have no evidence of any terminal infection such as so often kills these patients.

A PHYSICIAN: His symptoms date back rather far for a syphilitic lesion. That is just one straw on the other side. Because usually the syphilitic cases of aortic regurgitation go to pieces pretty fast, and if he has had fifteen years of it I think there is a little suggestion there that adds to the rheumatic side.

DR. CABOT: That is an excellent point. One and a half to two years is about the limit of proved syphilitic cases after they begin to complain, after they come to the doctor or to this hospital. Eighteen months or two years is about the limit of syphilitic aortitis, and as Dr. Smith says, this man has been coming for years.

A PHYSICIAN: The fact that his pain has been relieved by nitroglycerin is in favor of syphilis.

DR. CABOT: It was his dyspnea that was relieved, wasn't it? The fact that he had very little pain is rather against syphilis.

A PHYSICIAN: Yes, most of the syphilitic cases do have pain.

A PHYSICIAN: I have seen rheumatic disease in young women relieved by nitroglycerin.

DR. CABOT: I think the two points just brought out,—the absence of pain and the long duration—make me inclined to swing to the

other side. I have said I thought it was syphilis, but I think evidence has been brought out that it is a little more likely to be rheumatic. I do not think, however, that there is any certainty.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Aortic and mitral regurgitation.
Broken compensation.

DR. RICHARD C. CABOT'S DIAGNOSIS

Aortic regurgitation (rheumatic? syphilitic?)
Chronic endocarditis?
Hypertrophy and dilatation of the heart.
Chronic passive congestion.

ANATOMICAL DIAGNOSIS

1. Primary fatal lesion

Syphilitic aortitis with involvement of the aortic valve.

2. Secondary or terminal lesions

Hypertrophy and dilatation of the heart.
Chronic passive congestion.
Infarct in the left lung.
Serofibrous pericarditis.
Double hydrothorax.
Ascites.
Anasarca.

3. Historical landmarks

Chronic appendicitis.
Papillary cystadenomata of the kidneys.
Small hypernephroma.
Arteriosclerosis of the aorta.

DR. RICHARDSON: This is an interesting case because it brings up the story of syphilitic aortitis. It was in 1903. We have had one case, a case I did here I think in 1899, of what we called then syphilis of the aorta and pulmonary artery, and there was a gumma in the heart wall. The specimen is now in the Harvard Museum. Here we have one following that case in which the diagnosis is made, "atheromatous endocarditis of the aortic valve associated with arteriosclerosis of the aorta." There were a number of cases that were called that in those days. But we are wiser now; we know that was syphilis. That was before we found the spirochetes. This case then is syphilitic aortitis with a slight amount of arteriosclerosis.

The lower extremities, the abdomen, scrotum, penis and left arm were edematous. There was a surgical dressing on the right lower leg.

The muscles were soft and wet. The peritoneal cavity contained about two liters of serous fluid. The diaphragm on the right was at the sixth rib and at about the same level on the left.

In each pleural cavity there was a large

amount of fluid,—hydrothorax,—and some pleural adhesions. The lungs showed chronic passive congestion and in addition in the left lung there was a large infarct, and in a branch of the pulmonary artery leading to that infarct an occluding thrombus. From the record I can find no source for that thrombus. The auricular appendages were not specifically mentioned.

That brings us to the heart. It was large, 669 grams,—considerable hypertrophy. The surface of the heart was coated with fibrinous material, and there was about 200 c.c. of reddish cloudy fluid in the pericardial cavity,—serofibrous pericarditis. The myocardium was thick but showed no evidence of myocarditis. The mitral and tricuspid valves were a little wider than usual but presented no lesions. The aortic cusps showed fibrosis, especially well marked where the margins of the cusps come together, and at these points fibrous bands extended up on the wall of the aorta. From the description we know now that it was syphilitic aortitis. The sections showed the lesions of syphilitic aortitis.

There was a certain amount of arteriosclerosis, not very extensive. The kidneys showed chronic passive congestion, and a few small scattered tumors, papillary cystadenomata. The gastro-intestinal tract showed chronic passive congestion. The liver and spleen showed chronic passive congestion. The appendix showed chronic appendicitis.

DR. CABOT: This was a good while ago, before "chronic appendicitis" died as a disease. Would you make that diagnosis today?

DR. RICHARDSON: I think so. I think it is fair to call the condition as described here chronic appendicitis.

DR. YOUNG: Pathologically that is all right; clinically it is not.

CASE 11192

MEDICAL DEPARTMENT

An American salesman of twenty-nine was sent from the Out-Patient Department February 14 complaining chiefly of headache. At eleven he had acute rheumatic fever lasting a year and a half. He believed that at that time he had heart trouble, but did not remember the symptoms. In general he had always been well and strong, though he was easily worried and anxious about his health. He denied gonorrhoea and syphilis by name and symptoms.

Five years before admission he began to urinate at night, at first irregularly, once or twice, later more regularly and more often, with very gradual increase. A year later his ears began to be stopped up at times. Following these periods he had deafness and headache. He also had occasional tinnitus. For four years he had been short of breath upon exertion. He had

never had dimness and blurring of vision, light hallucinations or disseminating scotomata. Headache had become the prominent symptom. He seldom woke up without one. They occurred at any time of day. Recently they had usually been associated with epistaxis. The middle of January before admission a submucous resection on the left side of his nose was done at the Eye and Ear Infirmary. Since that time the nosebleeds on the opposite side had become more prolonged and frequent. He had rather persistent slight cough. He was somewhat easily fatigued. For some time he had had a cramp-like feeling in his left chest, usually brought on by lying on the left side and by exertion, lasting only two or three minutes and relieved by change of position or rest. A week before admission he reacted to potassium iodid with nausea, vomiting, swollen glands, and swollen eyes.

Records of the Out-Patient Department show that on February 6, a week before his admission to the wards, he was referred from the Eye and Ear Infirmary, where his ears were syringed out December 26 and later the submucous resection mentioned above was done, both with no relief. He gave a history of being gassed in France. He smoked two packages of cigarettes a day.

Examination showed the heart enlarged downward and to the left. The blood pressure 204/150, the pulse 120. The specific gravity of the urine was 1.010; a large trace of albumin, occasional coarse granular casts, 45 to 50 red blood corpuscles and 3 to 6 leucocytes per high power field. A Wassermann was negative.

Examination in the wards showed a young man with flushed face and ammoniacal breath. The tonsils appeared infected. Cervical glands on both sides were palpable. The apex impulse of the heart was felt in the fifth space 8 cm. from midsternum, coinciding with the left border of dullness half a centimeter outside the midclavicular line. The pulmonic second sound was greater than the aortic second. Both were accentuated. The heart rate was 120. There was a questionable pericardial friction rub. The arteries were sclerosed. The blood pressure was 165/120 to 190/150. The fingers showed tremor. The patient said he felt nervous. The pupils were irregular, otherwise normal. The fundi showed retinitis.

The temperature was 97.2° to 99°, the pulse 70 to 112, the respirations 20 to 25, with a terminal rise to 102°, 140 and 40 respectively. The amount of urine was 42 ounces on the one occasion recorded, the specific gravity 1.008 to 1.014, a large trace of albumin at both of two examinations, leucocytes and red blood corpuscles at both. The renal function showed a trace. The non-protein nitrogen was 143 mgm., the uric acid 7.8. The hemoglobin was 60 to 55 per cent., the leucocytes 12,300 to 48,000, the reds

3,220,000 to 2,750,000, with slight achromia, anisocytosis and poikilocytosis. A Wassermann was negative.

February 17 Dr. P. D. White found a very localized inconstant friction rub at the apex varying with respiration, and wrote, "It does not resemble the acute pericarditis of uremia. Pleuropericardial (?) mechanism. To be followed." Two days later the patient was much worse, with unexpected dyspnea and precordial pain not explained by the unchanged very slight rub. February 20 bronchial breathing and consonating râles were found in the left lower back. That night the patient died.

DISCUSSION

BY DR. MAURICE FREMONT-SMITH

NOTES ON THE HISTORY

Tinnitus we get in chronic middle ear conditions with thickened drums, and also in the hypertensive cases. But it is a symptom that cannot be overlooked when associated with deafness and with headaches because it is then often the first symptom of an acoustic neuroma. An acoustic neuroma is a type of brain tumor with good prognosis and can often be removed safely. Later on one gets involvement of the cranial nerves at the base, pressure on the sixth nerve often first, or on the third and fourth and the facial. But every time one finds deafness which might be eighth nerve and tinnitus which might be eighth nerve, especially with headache associated, we ought to think of early acoustic neuroma.

I do not know what the man who asked about the vision, hallucinations, etc. was looking for. Possibly he was considering migraine. Possibly he was looking for the earliest signs of intracranial pressure, choked disc, although we know that in choked disc there may be for a time no visual disturbance.

The time of day at which the headaches appear is of some suggestive importance. The patient who wakes with a headache is more likely to be suffering from renal insufficiency than the man who develops a headache during the day. The patient who complains of nocturnal headaches is more apt to be suffering from the headaches of lues than the man who has headaches during the day. Headaches secondary to eye-strain are much more apt to come on during the day and after eye work, and not be present in the morning.

Epistaxis again suggests hypertension.

I should like to know whether this operation was done on sufficient grounds. I think these intranasal operations are particularly to be most carefully considered. We take a perfectly well man, operate on his nose, and he has a certain definite chance—and it is a good chance—of developing otitis, mastoid abscess,

and death, as in a case I have seen within the past week. In another case a man who was operated on for a turbinate, whose urine probably was not examined beforehand because he seemed to be perfectly well and it was such a small operation, developed glycosuria, erysipelas, septicemia, and died. There are two people who might today be perfectly well if they had not had this operation done, an operation which is often considered very easily by the nose man as an attempt to relieve ill-defined headache. I think every other cause should be eliminated and the patient should be just as carefully studied as for a laparotomy before operating upon the nose.

Patients with big hearts, with hypertension, sometimes have indefinite cardiac discomfort which we cannot call angina nor can we find a friction rub, and it seems as though we must explain it by the dilatation, the stretching, of the ventricle. I do not know how to explain this relief by change of position or rest.

It is well to remember that if after taking potassium iodid the patient develops very large parotid glands and pain in the parotids he is not necessarily developing mumps, that the iodid increases the action of the salivary glands so much that the ducts are not sufficient to allow the saliva to flow through rapidly enough and there is backing up in the salivary glands.

NOTES ON THE PHYSICAL EXAMINATION

Of course with a blood pressure of 204 he has either a chronic nephritis or an essential hypertension or possibly increased intracranial pressure, and with this urine we can be certain that it is nephritis.

This probably is a single specimen and the amount would not be of significance. It is the picture of a fairly acute glomerulonephritis, and with the blood pressure of 204 we have to say that it must be an acute flare-up on the basis of a chronic glomerulonephritis.

It is surprising how small a heart may be and continue to be for some time with a blood pressure of 204. The heart will be enlarged at autopsy, however.

In chronic nephritis the blood pressure will not fall as much after rest in bed as it will in essential hypertension, where the blood pressure variations are very great indeed.

There is nothing here so far that we cannot explain on the basis of a chronic glomerulonephritis. There is a pretty low specific gravity. We do not know how much he was drinking. What we really want to know is how much was passed in the day and how much in the night.

There is an anemia which would back up our diagnosis of glomerulonephritis, evidently a secondary affair.

I should like to ask Dr. White what is typical about the acute pericarditis of uremia. Of

course we know that it does occur. There can occur also I know a chronic pericarditis in the chronically infected heart. In the case of chronic infectious arthritis one may find a low-grade friction rub that will be symptomless and remains for long periods. He evidently thought this was perhaps not a real pericarditis but a rub occurring between the pericardium and the pleura.

He died undoubtedly by developing pleurisy and pneumonia.

DIFFERENTIAL DIAGNOSIS

I do not feel that there is any differential diagnosis here. We shall find badly damaged kidneys and a big heart. It will be interesting to see how much evidence there is of arteriosclerosis. It is the present feeling that hypertension brings about arteriosclerosis, that hypertension persisting long enough will cause arteriosclerosis. I think that we shall find evidence of pneumonia, and not much passive congestion, if any.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Chronic nephritis.

Uremia.

Bronchopneumonia.

DR. MAURICE FREMONT-SMITH'S DIAGNOSIS

Chronic glomerulonephritis.

Hypertrophy and dilatation of the heart.

Arteriosclerosis?

Terminal pneumonia.

ANATOMICAL DIAGNOSIS

1. Primary fatal lesion

Arteriosclerotic nephritis.

2. Secondary or terminal lesions

Chronic adhesive pericarditis.

Hypertrophy and dilatation of the heart.

Chronic passive congestion.

Hydrothorax.

Septicemia, streptococcus.

DR. RICHARDSON: We were not permitted to examine the head.

The gastro-intestinal tract, except for slight evidence of chronic passive congestion, was negative. The diaphragm on the right was at the fourth interspace, on the left at the fifth rib.

In the right pleural cavity there was about 1800 c.c. of thin pale fairly clear fluid, on the left about 800,—double hydrothorax. There were no pleural adhesions. The lungs showed a moderate amount of chronic passive congestion.

The pericardial cavity was obliterated by thin membranous adhesions,—a chronic adhesive pericarditis. The heart weighed 480 grams,—considerably enlarged. The myocar-

dium was thick generally, four mm. on the right, fifteen on the left, the valves and cavities frankly negative. The coronary arteries were free but showed scattered along the intima a slight amount of fibrous sclerosis, and the aorta showed scattered along it more sclerosis than we should expect to find at twenty-nine. So that as far as the heart itself goes there was a chronic adhesive pericarditis and nothing else to account for the hypertrophy. The character of the pericarditis associated as it was with no mediastinitis or pleuritis would not be in harmony with so much hypertrophy.

The liver showed some chronic passive congestion. The spleen was moderately enlarged, 270 grams, elastic brown-red tissue of passive congestion.

The kidneys weighed 180 grams. That is considerable atrophy. One kidney in a man of twenty-nine could very well weigh that much. The capsules were slightly adherent, the surfaces granular, the tissue tough. The markings were more or less obscured, the cortex two to three mm. The cut ends of the vessels were not very prominent. The mucosa of the pelvis here and there showed minute to small hemorrhagic areas. The picture on the whole was more like that of arteriosclerotic nephritis, although the age of the man would be more in harmony with chronic glomerulonephritis. But arteriosclerotic nephritis, as we see in cases that come to us now and then, sometimes occurs at an early age. The microscopic examination of the kidneys confirmed the gross appearance, the glomeruli failing to show the lesions of chronic glomerulonephritis.

Culture from the heart yielded a good growth of the streptococcus hemolyticus, a terminal infection.

CASE 11193

SURGICAL DEPARTMENT

A married Scotchwoman of sixty came to the Emergency Ward December 3. No history was obtained except that for many years she had had a swelling of the lower abdomen in the region of the scar of a pelvic operation done twenty years before admission.

November 30 she complained of pain in the lower abdomen and vomited several times. After two hours or so this subsided and she felt well until 8 p. m. December 2, when she was seized with cramp-like pains in the lower abdomen accompanied by vomiting. Both symptoms continued up to admission.

Examination showed a sick, dried-out woman complaining of abdominal pain. Nothing further is recorded except that the abdomen was obese and tender and showed in the lower portion a tender and tense mass the size of a

large grapefruit. The chart, urine and blood before operation are not recorded.

Operation was done at quarter to three in the morning December 3. She did very well until the night of December 4, when she began to vomit and showed considerable abdominal distension. The urine showed a specific gravity of 1.030, the slightest possible trace of albumin, innumerable leucocytes and some sugar, acetone and diacetic acid. The blood sugar went as high as 400 mgm. December 6 she died.

DISCUSSION

BY DR. EDWARD L. YOUNG, JR.

Here the diagnosis seems obvious on the face of it. A woman with a post-operative hernia which has been present for twenty years, which two days before admission had got pinched enough to give her vomiting and pain and then stayed quiet for two days until about six hours before admission, when she again had cramp-like pain and vomiting. Examination then shows a mass consistent with a hernia which has been strangulated: tense and tender. She is having the vomiting of acute intestinal obstruction, which can come on at once where there is strangulation present even if it is low down. In obstruction in the large bowel vomiting is sometimes delayed for forty-eight hours or more, whereas in the small bowel it results in vomiting very early. But if there is strangulation of the gut the vomiting may come on early regardless of what portion of the bowel it is.

They considered it as an acute abdominal emergency and they operated on her at once. It must have been very soon after the strangulation took place. The treatment for that is of course a local anesthesia operation with the release of the strangulated gut, which in six hours probably is not gangrenous unless we can assume that a certain amount of pressure two days before had damaged it a little, and then within six hours strangulation resulted in perforation. But it seems to me on the chances the release of the hernia under local anesthesia should result in a perfectly satisfactory outcome.

Of course we may say there is very little to rule out anything else, but it seems to me when we have this picture there is very little else which we need really to consider.

DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

Strangulated hernia.

PRE-OPERATIVE DIAGNOSIS

Strangulated ventral hernia in scar.

OPERATION

A mass the size of two fists lay transversely across the midline, apparently a hernia in a

scar of an old laparotomy. Under local novocain a long transverse elliptical incision was made. Musculature was practically absent. The total thickness of the wall beneath the fat was not more than a quarter of an inch. The fascia was cleaned in every direction and the neck of the sac approached externally along the fascia. When this had been defined an incision was made into the peritoneal cavity and the hernial ring divided from within outward. The sac proved to be lobulated, with dusky bowel, probably ileum, in it. This intestine at a few points presented hemorrhagic deposition of fibrin, but on the whole the color was good and peristalsis set up rather promptly in it. The lumen of the intestine contained numerous very hard angulated masses, probably representing impacted fecal material, although they felt like gall-stones. The omentum was adherent at a few points inside the sac and was divided. The sac was amputated and the peritoneum and fascial wall closed. A long empty Miller wick was drawn out at each end of the wound for drainage.

FURTHER DISCUSSION

Of course the peristalsis was proof of vitality.

So far as the description goes there is no reason to assume anything but good recovery, possibly with a certain superficial sepsis, which often occurs in fatty abdominal walls.

The subsequent history tells us very little about any possible treatment. The interesting thing is not the diagnosis or the treatment from the surgical point of view, but the question of the accompanying sugar in the urine with the high blood sugar. We don't know whether she came in with a diabetes or not. There is no record to show that she knew she had diabetes. But a great many patients come to the hospital for surgical treatment and for the first time discover on routine examination that there is diabetes present. Of course she had a surgical emergency which had to be treated at once. But the presence of diabetes in such a case is a medical emergency also—this is one of the few medical emergencies—and means the handling of the patient by a medical man at the same time that the surgical treatment is being carried on. An acute sepsis which might demand immediate surgical operation if there is no diabetes demands a certain amount of pre-operative treatment, it may be just a few hours, if the patient is diabetic. Here I do not think the surgeon would be justified in waiting, because assuming this to be what it was the delay of even an hour or two might be serious, but it makes it all the more important that the medical man be on the job.

It is true that following operation the accompanying starvation will result in the formation

of acetone, diacetic acid, sugar in the urine, and also some elevation of blood sugar. I am going to ask if the blood sugar would ever go as high as 400 mgm. following an operation which in itself was not severe if the patient were not diabetic.

DR. CABOT: I think not.

DR. YOUNG: There is no record that this was handled at all medically?

DR. CABOT: There is not, certainly, any medical treatment in the record.

DR. YOUNG: I think that is the thing to emphasize, that here is a medical emergency which in its outcome proves itself to be as important as the surgical emergency, and it gives the reason for a pre-operative urine even though the operation has to be done in spite of what that shows. The question of sepsis comes up. She may have sepsis in the abdomen, peritonitis. It may be localized. Of course we know that diabetics are more prone to infection than normal people, and it may be that in spite of the report of the fairly normal bowel there had been enough of infection around the bowel—we know that the infection gets outside the wall even though it is not perforated—so that that spread and was an important factor in her death.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Strangulated ventral hernia.

Diabetes.

Chronic nephritis.

Uremia.

Operation, repair of strangulated ventral hernia.

DR. EDWARD L. YOUNG'S DIAGNOSIS

Diabetes mellitus.

Strangulated hernia.

Localized peritonitis?

ANATOMICAL DIAGNOSIS

1. Primary fatal lesions

(Diabetes mellitus.)

Chronic interstitial pancreatitis.

Scar of old operation wound.

(Strangulated ventral hernia in scar.)

2. Secondary or terminal lesions

Operation wound.

Localized peritonitis.

Distension of the intestine.

Fatty metamorphosis of the liver.

Hemorrhagic edema of the lungs.

3. Historical landmarks

Cholelithiasis.

Slight pericholecystitis.

Small fibromyoma of the uterus.

DR. RICHARDSON: The body was that of a very stout white woman. Just below the operation wound was an old linear scar.

The peritoneal cavity in the region of the left lower quadrant contained about 100 c.c. of semi-fluid purulent material, and the serosa of several coils of the small intestine was dark red to blackish-red and coated with dirty grayish-red exudate. On opening these coils the mucosa was seen to be blackish-red and in places dirty grayish, necrotic-looking, but without any evidences of definite perforation, although the wall must be said to have been in a state of necrosis in places at least.

DR. YOUNG: So the sepsis got through the wall.

DR. RICHARDSON: Yes, it could. The appendix was not found.

DR. YOUNG: It was probably removed twenty years before.

DR. RICHARDSON: The esophagus was negative. The stomach was distended and contained a small amount of dirty brownish-red fluid material. There were areas of ecchymosis in the mucosa here and there. The small intestine was distended and the coils mentioned rested about 75 cm. above the ileocecal valve and involved a length of intestine of 35 cm. The large intestine was distended but otherwise negative.

The lungs showed considerable hemorrhagic edema but were otherwise negative.

The heart weighed 345 grams. She was a large stout woman and that was no particular increase in the weight for her. The valves and cavities were negative. The circulatory apparatus generally was negative.

The liver showed some fatty metamorphosis. The gall-bladder contained six stones about one em. in diameter, and twenty smaller ones. The mucosa was negative, the bile-duets free and negative. There were a few old adhesions about the gall-bladder. The pancreas showed fatty infiltration and some interstitial increase. The islands were frankly negative. The spleen was a little soft. There was a small pedunculated fibromyoma in the uterus. The tubes and ovaries were not found. A broad band of adhesions extended from the top of the uterus to the anterior parietal peritoneum.

CRIPPLED CHILDREN, SOUTH DAKOTA

SOUTH DAKOTA recently appropriated \$4,000 annually to help the crippled children of the State. A survey has been made which shows that 11 counties report no needy crippled children, but that 127 such children were found in 32 other counties. Surgical treatment by orthopedic specialists is being secured for all children who need it.

CURRENT LITERATURE

ABSTRACTORS

GERARDO M. BALDONI	TRACY MALLORY
WILLIAM B. BREED	HERMAN A. OSGOOD
LAURENCE D. CHAPIN	FRANCIS W. PALFREY
AUSTIN W. CHEEVER	EDWARD H. RISLEY
RANDALL CLIFFORD	GEORGE C. SHATTUCK
ERNEST M. DALAND	WILLIAM H. SHEDDEN
HORACE GRAY	WARREN R. SIRSON
ROBERT M. GREEN	JOHN B. SWIFT, JR.
JOHN B. HAWES, 2ND	GEORGE G. SMITH
JOHN S. HODGSON	W. T. SHERMAN THORNDIKE
FRED S. HOPKINS	WILDER TILESTON
CHESTER M. JONES	HENRY R. VIETS
CHARLES D. LAWRENCE	SHIELDS WARREN

BRYANT D. WETHERELL

THE SURGICAL TREATMENT OF ANGINA PECTORIS

REID, M. R., and ANDRUS, W. D. (*Annals of Surgery*, March, 1925).

These authors discuss the theories on which such treatment is based, and draw the following conclusions:

1. In this paper there are collected from the literature 62 cases that have been operated upon for angina pectoris; in 50 cases the sympathetic nervous system was operated upon; in 10 the depressor nerve of the para-sympathetic system. In possibly two instances, Borchard's case and that of Reid, both depressor and sympathetic nerves were removed.
2. So many of the cases are reported so soon after operation that it is difficult to draw any definite conclusions as to results. Some 13 patients, however, seem to have been unquestionably relieved of pain by the operative procedure.

3. Numerous operative procedures have been employed; the best results have been obtained by doing a cervico-thoracic sympathectomy.

4. The best results have been obtained in those cases of typical angina pectoris unassociated with recognizable serious cardiac lesions.

5. The causes of angina pectoris, in the American sense, are undoubtedly numerous. Two types, one resembling cardiac neuralgia and the other a process in the heart muscle similar to that producing intermittent claudication elsewhere, are especially interesting from the standpoint of being benefited by operating upon the autonomic nervous system.

6. The term angina pectoris should be limited to a certain definite type of cardiac pain. As it is now used it is confusing.

7. The course of the depressor nerve in man has not been definitely proven.

8. It is suggested that in operations for angina pectoris it would be well not only to remove the cervico-thoracic sympathetic chain but also the supposed depressor nerve.

9. Widespread sensory and motor disturbances have resulted from cervico-thoracic sympathectomy. In view of this every case should be most carefully observed following operation. It is the first opportunity we have had of studying such procedures upon cooperative animals. The operation presents an unusual chance to learn more about the function of the vegetative nervous system.

An excellent bibliography is appended.

(E. H. R.)

GASTRIC TETANY

DEBAYLE, HENRI (*Annals of Surgery*, March, 1925). This author discusses this subject rather fully and defends in the treatment the giving of large doses of normal salt solution as one way in which the condition may be partially relieved.

(E. H. R.)

SPLANCHNIC ANESTHESIA

MEEKER, W. R. (*Archives of Surgery*, March, 1925). The author analyzes the results in 42 cases operated on by this method of anesthesia, and draws the following conclusions:

1. Abdominal viscera are insensitive to pain so far as the cutting, crushing or cauterizing of an operation is an adequate stimulus for the production of such pain. The breaking of conductivity in the splanchnic nerves for the relief of visceral pain in abdominal operations is, therefore, not in accordance with sound principles of anatomy and physiology.

2. The pain experienced by the patient in an abdominal operation under local anesthesia is caused by the stimulation of spinal and not sympathetic nerve filaments, since it arises as the result of either traction on mesenteries or direct irritation of parietal peritoneum. Paravertebral block of the fifth dorsal to third lumbar nerves for intraabdominal anesthesia is anatomically and physiologically correct, but entirely impractical.

3. Clinical experience with splanchnic anesthesia proves it to be inefficient, since, by its use, a complete surgical anesthesia of the abdominal cavity is not produced. It is the least important of all the factors concerned in the success of an abdominal operation under local anesthesia.

4. Besides the production of an inadequate intra-abdominal anesthesia, splanchnic nerve block is not free from danger, a fact acknowledged by most users of the method. Four deaths in a collected series of 1375 operations is a higher mortality than that recorded for spinal anesthesia. [E. H. R.]

ASEPTIC END-TO-END INTESTINAL ANASTOMOSIS

WEBSTER, J. P. (*Annals of Surgery*, March, 1925), and a second article by BURNS, J. G.

These two authors describe two new methods of accomplishing this result, the first by a specially constructed instrument which cuts away a portion of the invaginated intestine after suture has been accomplished. This is done from within the intestinal lumen and the special instrument withdrawn.

The second article describes the introduction of a ball through which sutures are threaded through two small channels or openings in the ball. This ball is introduced between the sutured segments and the slip knot pulled through, the ball being pushed through the obstructing portion of turned-in intestine until this is free. [E. H. R.]

INJECTION OF LYMPHATICS IN MAMMARY CANCER

MANDEL (*Wien. Klin. Woch.*, Dec. 4, 1924) describes a method of the preoperative injection of the axillary lymphatics as a guide to the surgeon in the complete operation for cancer of the breast.

[R. M. G.]

SOME PHENOMENA COUNTERFEITING ORGANIC HEART DISEASE

COOMBS, C. F. (*The Lancet*, Dec. 27, 1924) discusses at length the various misleading symptoms in cardiac conditions which are most commonly mistaken as definite organic heart conditions. It is a most interesting and instructive article.

[R. C.]

PURULENT PNEUMOCOCCIC PERICARDITIS: PERICARDIOTOMY: RECOVERY

HALL, A. J. and TOWNROW, V. (*British Medical Journal*, Dec. 20, 1924) report an interesting case of purulent pneumococcal pericarditis in which surgical measures were necessary, after which complete recovery followed.

[R. C.]

SPLENIC ANEMIA

HANRAHAN, E. M. (*Archives of Surgery*, March, 1925).

Hanrahan presents an article of 49 pages, giving a study of end results with and without splenectomy, based on 35 cases. The cases are reported in detail, the pathology is discussed, the results of treatment are tabulated, and many charts are given.

The object of this study was to draw conclusions as to the benefit of operation in these conditions. The mortality in 10 cases running a rapid course was 30 per cent. In 22 patients in all, the spleen was removed.

Definite conclusions are not drawn, but the condition of the blood before and after splenectomy is discussed in considerable detail.

[E. H. R.]

LYMPHATICOSTOMY

LEHMAN, E. P., and COPHER, G. H. (*Archives of Surgery*, March, 1925).

The authors present an experimental and clinical study of thoracic duct drainage in general peritonitis, and they conclude that drainage of the thoracic duct in a dog does not exert a favorable influence on peritonitis. It may, on the other hand, exert a slightly favorable influence on toxemia from intestinal obstruction. A single case of general peritonitis in the human suggests a slightly favorable effect from the drainage of the thoracic duct.

[E. H. R.]

A SUGGESTION FOR THE RELIEF OF THE PAIN FROM CARCINOMA OF THE MOUTH AND CHEEK

GRANT, F. C. (*Annals of Surgery*, February, 1925). This author defends the use of nerve blocking by absolute alcohol of the branches of the fifth nerve for the relief of pain in the presence of inoperable cancerous lesions about the face. The suggestion seems a valuable one.

[E. H. R.]

ABSTRACT OF PAPERS OF INTEREST TO PRACTISING PHYSICIANS, TAKEN FROM REPRINTS OF STUDIES FROM THE ROCKEFELLER INSTITUTE

Gall Stone Formation

DRURY, McMASTER and ROUS (*Jour. of Exp. Med.*, 39:403, Mar. 1, 1924) showed that cholesterol precipitation out of human bile can be prevented by slightly altering the reaction toward the acid side.

Botulism

BRONFENBRENNER and WEISS (*ibid.*) found that anesthesia delayed the progress of the intoxication, thus affording more time in which to secure antitoxin.

Tumor Heredity

LYNCH (*ibid.*), studying mice from tumor strains, came to support the theory that the tendency to develop neoplasms is a hereditary trait, and dominant.

Neocinchophen (Novatophan)

BOOTS and MILLER (*ibid.*) observed in rheumatic fever that salicylates seemed slightly more effective, while neocinchophen was less toxic.

Pneumonia

BINGER and BROW (*ibid.*) undertook to study the functional residual air (lung volume at end of normal expiration) in pneumonia, and found it closely parallel to the radiograph and physical signs.

[H. G.]

**THE BOSTON
Medical and Surgical Journal**

Established in 1828

Published by The Massachusetts Medical Society under the jurisdiction of the following-named committee:

For three years JAMES S. STONE, M.D.
HORACE D. ARNOLD, M.D.
CHANNING FROTHINGHAM, M.D.

For two years HOMER GAGE, M.D., Chairman
EDWARD C. STREETER, M.D.
EDWARD W. TAYLOR, M.D.

For one year WILLIAM H. ROBEY, JR., M.D.
ROGER I. LEE, M.D.
ROBERT B. OSGOOD, M.D.

EDITORIAL STAFF

DAVID L. EDGALL, M.D.
WALTER B. CANNON, M.D.
REID HUNT, M.D.
FRANCIS W. PEABODY, M.D.
J. P. MUFVERLAND, M.D.
S. BURT WOLRICH, M.D.
GEORGE R. MINOT, M.D.
FRANK H. LAHEY, M.D.
STEPHEN RUSHMORE, M.D.

WALTER P. BOWERS, M.D., *Managing Editor*

ASSOCIATE EDITORS

GEORGE G. SMITH, M.D.
WILLIAM B. BREED, M.D.
JOSEPH GARLAND, M.D.

SUBSCRIPTION TERMS: \$6.00 per year in advance, postage paid for the United States, \$7.56 per year for all foreign countries belonging to the Postal Union.

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the Journal office, 126 Massachusetts Ave.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The Boston Medical and Surgical Journal, 126 Massachusetts Ave., Boston, Mass.

THE JOHN A. ANDREW CLINICAL SOCIETY

THOSE who are interested in the problems confronting ten million American Negroes, a race less than seventy years out of bondage, will do well to read in Booker T. Washington's "Up From Slavery," an account of the magnificent achievements already made by these people, largely under the leadership of that modern Moses who founded the Tuskegee Institute. The Hampton Institute had been founded shortly after the war, but it was founded and controlled by white men. In 1883 Booker Washington, a graduate of Hampton, laid the foundations of Tuskegee Institute at Tuskegee, Alabama, and it has remained entirely under Negro control until the present day, with its body of 1800 students, its many buildings, constructed by the students themselves, and its various academic and industrial departments.

The John A. Andrew Memorial Hospital was constructed at the Institute in 1912 in memory of the War Governor of Massachusetts. The hospital was the gift of Mr. and Mrs. Charles E. Mason of Boston, Mrs. Mason being the granddaughter of Governor Andrew. It is in every way a modern and complete medical and surgical unit of about seventy beds, serving not only the

Institute but the Negro population for many miles around. Entirely staffed by physicians and nurses of the colored race, it is an exceptionally efficient and well conducted institution.

The Clinical Society was organized in 1918, largely through the interest of Dr. John A. Kennedy, at that time director of the hospital, "for the advancement of Negro Physicians and Surgeons in the Science and Art of Medicine and Surgery, and for the study and treatment of morbid conditions affecting thousands of needy sufferers in this section of the South." Dr. C. V. Roman of Nashville, Tennessee, physician, author and philosopher, was the first president. The Society, which now includes in its membership Negro physicians from New York to Texas and from Florida to Illinois, holds an annual meeting and clinic at the Memorial Hospital in April, at or about the time of the Institute's celebration of its Founder's Day.

Physicians of the white race are occasionally invited to the meetings. In 1923 Drs. Richard H. Miller and Albert A. Hornor of Boston, and Dr. Southgate Leigh of Norfolk, Virginia, were the guests, and this year Drs. Miller and Leigh and Dr. Joseph Garland of Boston were present, actively participating in the clinics. The demands of the clinic are many, for during this week the hospital becomes the Mecca of the lame, the halt and the blind for many miles around, operating goes on in full swing from early in the morning until the afternoon, medical and pediatric clinics are crowded, many ably prepared papers are read and ably discussed, and in addition evening receptions for the physicians and their guests are held by the Institute.

Any person not acquainted with the facts who believes that the Negro is not suited to the learned professions needs only a visit to Tuskegee at the time of the John A. Andrew Clinical Society meetings to convince him of his error. The papers presented are as thorough as those heard at the average Society meeting, and the man who would not be caught napping at a clinic must keep constantly on his toes. It is a long step from social and economic slavery to a condition of educational and intellectual equality, and two generations is a short time in the world's history, but in point of accomplishment no one can deny that the Negro has taken immense strides. In the white race as in the black some are suited only for manual labor. With the black race as with the white some are limited only by the opportunities that are afforded them. Social and economic conditions are still barriers that deprive the Negro of many opportunities that he badly needs.

The medical schools of the country will matriculate and graduate Negro students, but most of the general hospitals debar him from internships. The Freedmen's Hospital in Washington, the Provident Hospital in Chicago, the John A. Andrew Hospital and others devoted to his race

provide internships, but only sufficient for about half of the physicians graduated. Two medical schools, Meharry at Nashville, Tennessee, and the Medical School of Howard University in Washington are entirely colored. More opportunity for study and particularly more opportunity for hospital service are needed.

Three years ago the United States Veteran's Bureau constructed within two miles of Tuskegee Institute a six hundred bed hospital, first class in every detail, and the only Veteran's hospital in the country devoted entirely to the service of our half million Negro veterans. There is not a white man connected with this hospital, and under the administration of Lieutenant Colonel Joseph H. Ward it is one of the finest and best conducted hospitals in the Service. It has, moreover, recently become a general hospital for the study and treatment of all disease conditions arising among these veterans. The two hospitals at Tuskegee now probably comprise the most fertile field for clinical material that the race possesses, situated as they are in the centre of the Southern Black Belt, with seven million Negroes residing within a radius of seven hundred miles. Tuskegee is the logical site for a new school of medicine in a real medical centre.

A NEW PUBLIC HEALTH SERVICE

THE physician often hears, interlarded among the criticisms, just and unjust, that he is sometimes heaped upon his head, that he is so high-minded and public-spirited that he is actually trying to kill his own business by his advocacy of preventive medicine. Such laudatory criticism is not strictly true. By promoting the prevention of such diseases as are preventable the physician is neither trying to sacrifice himself, a willing martyr, on the altar of sheer philanthropy, nor is he trying to ease himself into a snug, if somewhat penurious, existence without the worries and tribulations of a practice.

What he is really trying to do is to change somewhat the type and scope of his professional activities. If preventive medicine is to be practiced it is to be the physician who will practice it, and trying to keep intelligent and well-informed people in health and caring for them when they do become ill should be considerably more attractive and at least as lucrative as attempting to treat ignorant, prejudiced and misinformed people only when they are ill, and that often through their own carelessness.

Many efforts are now being made by the organized profession gradually to bring the public to the point where it will be willing and even eager to know something of the physiology of the body in health and disease, and be in a position to appreciate and demand the service that can be rendered by the physician. We are hear-

ing much of these attempts that are being made to disseminate medical information among the laity and we are anxious to see them progress and become really valuable.

The Massachusetts General Hospital has taken a step that is perhaps unique for a general hospital by instituting a real campaign for the education of the public along health lines. This health source consists of the periodical publications in the daily press of complete and authoritative articles by members of the staff dealing with matters of general and common interest. These articles appear, and will continue for a time to appear, weekly in prominent Boston newspapers. Five have already been published, dealing with body mechanics, hay fever and asthma, varicose veins, basal metabolism and rickets.

The hospital is to be congratulated on having taken the initiative in such an important field of usefulness.

ANNUAL REPORT OF THE BOSTON CITY HOSPITAL

THE report of the Trustees of the Boston City Hospital for the year ending January 31, 1924, announces two especially noteworthy improvements. Both the new Out-patient Building and the Thorndike Memorial Laboratory were completed and turned over to the Hospital Trustees.

Among other changes in the material equipment of the hospital were the installation of a sprinkler system in the Main Hospital, the changing of the fire pipe from low service to high service, the installation of a Thorophone System for locating people throughout the hospital, and the purchase of seven radium needles at a cost of \$7350.

Much of the report is concerned with the scientific work done at the hospital. A long list of publications by members of the Staff is an index of their activity and interest. It is interesting to note that on the service for Tropical Diseases, 28 cases were treated during the year. These included cases of hookworm, teniasis, clonorchiasis, pellagra, amoebiasis, scurvy and sprue. A clinical investigation of the merits of pneumococcus antibody solution was conducted by the Influenza Commission.

The daily average number of patients in the hospital proper was 804.3; in the various out-patient departments at the hospital proper 38,690 patients were treated. The hospital has been overcrowded for the past few years. His Honor the Mayor and the City Council have provided \$180,000 to prepare plans for new construction, and the former has also presented a petition to the Legislature to provide \$3,000,000 for this work.

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY

CHARLES E. MONGAN, M. D., *Chairman*
FREDERICK C. IRVING, M. D., *Secretary*

THOS. R. GOETHALS, M. D., *Clerk*
Boston Lying-In Hospital, Boston, Mass.

(Communications and questions directed to the
Clerk will be welcomed and cheerfully
answered.)

THE method of examination of the pregnant patient seen for the first time has been outlined in some detail in a previous issue of the obstetric column. To recapitulate briefly, this consists in a general physical examination in which conditions of heart, lungs, abdomen, and pelvis are chiefly stressed. At the same time the blood pressure is determined and noted, and the urine tested for color, reaction, specific gravity, albumin, sugar, and sediment.

The general hygienic rules of pregnancy should then be gone over. These include the necessity for good surroundings with all possible opportunity for regular hours of rest, recreation, and sleep; plenty of fresh air and sunshine; a well balanced diet, including the ingestion of sufficient fluids to keep the kidneys active; the regulation of the bowels when a tendency toward constipation exists; the stimulation of the skin by means of warm baths; the adjustment of the clothing to support but not constrict the enlarging figure; the avoidance of violent exercise and physical fatigue; and the notification of the physician whenever any unusual or untoward symptom or sign develops.

Prenatal care, however, should not stop at this point. It does not consist merely in accepting a case for confinement, examining her once to make sure that no abnormalities exist at the time of acceptance, giving her the above instructions, and directing her to call the physician when something unusual is noticed or when labor pains begin. Such an arrangement is casual, to say the least, and leaves to the patient the judgment of the proper time to call for advice or assistance. An effective schedule of hygienic care calls for explicit directions to the patient to return to the office for observation and consultation at least once a month for the first six calendar months of her pregnancy and twice a month for the last three. These visits should be insisted upon despite the fact that the patient may feel physically fit; she should be made to regard them as a form of insurance for herself and her baby against avoidable trouble. She should be instructed to bring a bottle containing four to six ounces of freshly passed urine to each office visit and to submit a similar specimen approximately halfway between the visit and the next one succeeding.

This methodical routine of prenatal care is of the greatest value to both the physician and the patient. The former learns at an early period the personal equation of his patient while the latter acquires a feeling of acquaintance with and confidence in her doctor which cannot be attained in any other way.

The second and subsequent visits of the patient to the physician are ordinarily much simpler than the first. Much information of value is obtained by the latter merely by submitting certain questions regarding the patient's general health. This should be asked for first of all, and specific questions asked concerning appetite, digestion, and elimination. The date of quickening, when the baby is first felt to move, is elicited, and the continuance of fetal movements inquired for at each visit. Still more specific questions concerning the presence of marked or prolonged headaches, edema, epigastric discomfort or pain, blurring of vision or spots before the eyes, are used to elicit possible symptoms of a preeclamptic toxemia. Finally, in the event that some vaginal bleeding may have occurred but that it may have been considered of no importance by the patient, it is well to ask particularly for this sign at each visit.

The above information might, of course, be elicited by correspondence or over the telephone, but its value is greatly diminished unless the patient is in personal conference with the physician when it is obtained. It should invariably be supplemented by routine blood pressure and urine examinations, and such other examinations as conditions call for.

Determination of the blood pressure and examination of the urine for albumin at each office visit are of as much value in following the condition of the pregnant patient as they are in estimating the acceptability of a candidate for life insurance. A rising blood pressure and the appearance of albuminuria during pregnancy are signs which call urgently for increased watchfulness on the part of the physician, and they may occur in the absence of any subjective symptoms whatsoever. In the long run they are of much greater importance than subjective symptoms, inasmuch as the latter may be based upon non-toxemic conditions while the blood pressure and urine changes give the only quantitative index of the onset of a preeclamptic state. A consideration of common symptoms which occur during pregnancy and their relation to toxemia will be presented in an early issue of the obstetric column.

MEMBERSHIP CHANGES, MASSACHUSETTS MEDICAL SOCIETY, APRIL 1 TO MAY 1

REPORTED BY THE SECRETARY

NOTE.—The deaths have appeared in the "Recent Deaths" column in the *Journal*.

Abbott, Howard E., has moved from Boston (Suffolk) to North Reading (Middlesex East), Marblehead St.

Anthony, Jeremiah C., Springfield, from 4 Chestnut to 539 State St.
 Atkins, Samuel M., from Winthrop (Suffolk) to Waterbury, Conn. (Non-Resident List), St. Mary's Hospital.
 Benson, Clarence K., Dedham, from 8 Church St. to 769 East St.
 Bixby, Oliver E., Lynn, from 51 to 83 Broad St.
 Brigham, Edwin H., from Brookline to 45 Forest St., Wellesley Hills.
 Bushold, Fred G., Lawrence, from 60 Saunders St. to 46 Amesbury St.
 Eliot, Henry W., from Danby, Vt., to Manchester, Vt.
 Flippin, Clarence W., Shrewsbury, now has his address at Chase Terrace.
 Fisher, Edgar A., Worcester, from 25 Elm St. to 340 Main St.
 Foley, Timothy J., Worcester, from 340 to 332 Main St., Rooms 712-713.
 Hardwick, Sydney C., from Quincy (Norfolk South) to Maitland, Florida (Non-Resident List).
 Hayes, Frederick L., Brookline, from 423 Harvard St. to 66 Longwood Ave.
 Hooper, George H., from Tampico, Mexico (Non-Resident List), to Brockton (Plymouth), 118 Newbury St.
 Hunt, Ernest L., Worcester, from 120 Lowell St. to 20 Kenilworth Rd.
 Koppel, William, Dorchester, from 574 to 978 Blue Hill Ave.
 Littlefield, Samuel H., from Roxbury to Brookline, Chapel St., Alden Park Manor.
 Metcalf, Julia T., Los Angeles, Calif., has moved to 1829 South Gramercy Pl. in that city.
 Monroe, Noel G., Southbridge, from 2 Hamilton St. to 348 Main St.
 New, Way Sing, Shanghai, China, from 210 to 329 Bubbling Well Rd.
 Olin, Francis H., Southbridge, from 27 to 105 Hamilton St.
 Overlander, John E., Springfield, from 78 to 167 Maple St.
 Pachanian, S. K., from Lowell (Middlesex North) to Worcester (Worcester), where his office is at 92 Austin St.
 Page, Joseph G. E., Southbridge, from 28 to 86 Hamilton St.
 Potter, John C., from Sanford, Fla., to San Francisco, Calif., 45 Second St.
 Powers, William J., Holyoke, office now 225 High St.
 Reed, William G., Southbridge, from 2 Hamilton to 348 Main St.
 Ruel, Joseph A., Haverhill, from 14 Main St. to 81 Merrimack St.
 Ruston, Warren D., from West Somerville (Middlesex South) to Rockport (Essex South), office Boston, 20 Commonwealth Ave.
 Saltz, Sidney M., Boston, from 113 Chambers St. to 4 McLean St.
 Silbert, Harry, Salem, from 185 to 195 Lafayette St.
 Simpson, Charles, Southbridge, from 54 to 186 Hamilton St.
 Stearns, Robert T., from Mattapan (Norfolk) to Greenbush (Scituate), Plymouth, P. O. Box 23.
 Sullivan, Elizabeth A., from New York (Non-Resident List) to Cambridge (Middlesex South), 383 Broadway.
 Add to Alphabetical Directory:
 1917 Sundelöf, Ester, see Ericson.
 Sweet, Frederick B., Springfield, from 81 to 146 Chestnut St.
 Waite, Lucy R., Southbridge, from 39 to 125 Chapin St.
 Watkins, Harvey M., from Arlington to Waverley, office Boston, as before.
 Wilder, Ella A., Boston, from 82 East Concord St. to 36 Hull St.
 Yudelman, A. H., from Newton (Middlesex South) to Boston (Suffolk), Boston City Hospital.

A LETTER TO THE PRESIDENTS OF DISTRICT SOCIETIES

April 27, 1925.

Dear Doctor:

At a meeting of the Massachusetts Association of Boards of Health, April 23, it was voted:

"That it is the sense of this meeting that cases of venereal disease be reported to local boards of health by number first, and failing to continue treatment, or becoming incorrigible, then by name and address."

This is a challenge to our members who take an active part in the control of venereal disease in Massachusetts.

Will you bring this matter to the attention of your Society?

The State Department of Health is formulating rules and regulations governing these cases.

The Department would welcome suggestions from physicians interested.

Sincerely yours,

ENOS H. BIGELOW, President,
 Massachusetts Medical Society.

THE HARVARD MEDICAL SCHOOL DORMITORY

DURING the early stages of the campaign inaugurated for the purpose of raising funds to be applied to the building of this dormitory, the activities of the committee were set forth in medical journals because the development of interest and co-operation in the profession was deemed important as the fundamental feature of the effort. It seemed necessary to demonstrate a very general endorsement of this scheme by physicians before appealing to the public and charitable organizations, because doctors would have been lukewarm if not invited to assist and the laity would have been indifferent unless those best qualified to advise had approved the plan.

The committee in charge under the leadership of Elliott P. Joslin, Chairman, and Francis M. Rackemann, Secretary, was elected by the Harvard Medical School Alumni Association and has been actively at work with the result that 1463 doctors have contributed \$112,494 and 583 lay subscribers have given \$205,506. In addition to this amount Mr. Harold S. Vanderbilt will give \$125,000 for the gymnasium, locker rooms and equipment with the promise of a subsequent annual contribution for five years to cover the services of a capable instructor.

To these sums Harvard University will add approximately \$300,000, making a total of \$743,000. This leaves about \$480,865 to be raised to meet the necessary cost of this building and all extras including architects' fees.

With the greater proportion of the required money now available the rest should be raised comparatively easily.

The Secretary of the committee has written to *The Boston Transcript*, *The New York Times* and the American Medical Association presenting the facts and the arguments in favor of this

plan which will also appear in a statement to be sent to all graduates of the Harvard Medical School. The circular is as follows:

May 1, 1923.

To all Graduates of the Harvard Medical School:

The Dormitory project has received tremendous impetus by a very generous gift. Mr. Harold S. Vanderbilt, Harvard A. B. 1907, states in a letter to Dr. Edsell:

"I will be very glad to contribute the sum of \$125,000, to pay for the cost of the gymnasium, locker rooms and equipment (for the new dormitory) and in addition to make an annual contribution for five years after the completion of the gymnasium to cover the services of a capable instructor in the gymnasium."

This gift marks a new era in medical education. It is a part of the general movement for the prevention rather than the cure of disease. The Greeks and Romans depended on their gymnasiums and baths to keep themselves well, because these were their only preventive measures against disease. Hippocrates wrote that doctors should be taught how to take care of themselves so that they could better take care of others. This appreciation of the importance of physical culture—together with such other knowledge of great value—was lost during the middle ages, and the gift of Mr. Vanderbilt is the first step in modern times toward incorporating the experience of ancient centuries into the present day medical curriculum.

Primarily our gymnasium is to be a demonstration of the value of exercise for the student who works hard. In connection with the department of physiology, it offers the means of securing information concerning the effects of exercise in the students. The provision for a paid instructor makes it certain that these main functions will be carried out. Mr. Vanderbilt's own words show with what intelligence and foresight his gift has been made.

"I know of no better provision for the bodily health of the student than scientific physical culture exercise. There is to my mind a far more important consideration than the benefit which I am sure the student body residing in the Dormitory would derive from such a form of prescribed daily exercises. From that best of teachers, personal experience of the good which it has done their own minds and bodies, the students would learn the benefit which would accrue to their future patients and mankind, by prescribing and encouraging exercises of a similar nature."

The need for exercise by medical students has long been recognized. A year ago Dr. Edsell arranged with the Winsor School that their

tennis courts be made available for medical students at certain hours. The fact that these courts were used 1800 times in one season and thanks for this opportunity were repeatedly made to the Dean's office, shows how much this exercise has been appreciated—but tennis is a game for summer.

What exercise does—how it "clears the brain" and why the time consumed by it is more than made up by increased working efficiency, are subjects in normal physiology about which we are woefully ignorant. Future graduates of the Harvard Medical School will, thanks to Mr. Vanderbilt, know not only by book learning but by personal experience, how important the subject is.

The gymnasium which Mr. Vanderbilt wants, is to have a floor area of about 100 x 50 feet. It will be built under the West side of the Dormitory which so far has been reserved for a future addition. The gymnasium will occupy the basement and the first floor. It will have a running track in a balcony which will be on a level with the ground. Entrances will lead directly on to the balcony, and thence by spiral staircases in the corners to the main floor of the gymnasium. The room will be large enough for basketball, and also for setting up drills in a class of 125 men. Lockers and showers will be close at hand.

Let us hope that this most generous gift, which establishes a precedent in medical education, and which will increase so much the value and usefulness of our Dormitory, will encourage some other donor to help along our good cause in an equally handsome, generous and thoughtful way.

Meantime, the portion of the Dormitory now to be built, which will house 250 students, will cost \$1,223,865. This figure is large, but it includes the gymnasium, and also the dining hall with its kitchens and serving rooms. The figure also includes the cost of furnishings, equipment, and architects' fees, which are not ordinarily considered in such estimates as this.

Of this total amount we have so far in hand:
 Subscriptions from 1463 Doctors \$112,494
 Subscriptions from 583 Laity 205,506

Gift of Mr. Harold S. Vanderbilt	\$318,000
Investment by Harvard University	125,000
(approximately)	300,000
To be raised	\$743,000
	\$480,865

FOR THE COMMITTEE

FRANCIS M. RACKEMANN,
General Secretary.

The consummation of this plan inaugurated by the Medical School Alumni Association will

be an epoch making innovation in medical education because in addition to placing before the student the facts and theories of medicine and its allied sciences it will provide opportunities for the better care of his body and closer contact with teachers and associates, with the expectation that he can keep in better condition and prosecute his work with greater interest and efficiency.

We hope that the profession will show renewed interest in this plan and unite with the committee in securing the balance necessary for its success.

THE ANNUAL MEETING OF THE BOSTON CITY HOSPITAL ALUMNI ASSOCIATION

Editor, Boston Medical and Surgical Journal:

Herewith please find a short account of the annual meeting of the Boston City Hospital Alumni Association and the address of Dr. H. S. Rowen, of the Board of Trustees:

In the morning the Out-Patient Department of the hospital was open in every department, ready to show the modus operandi to any interested; many of the alumni visited this part of the day's work.

At 1 o'clock the Trustees and Dr. John J. Dowling, the Superintendent, generously provided an excellent lunch, which was attended by about 150. An interesting part of this lunch was the presence of Thomas Sims, who for 40 years had been connected with the hospital and for many years had had immediate charge of these lunches. He was called before those present and thanked for all he had done and congratulated upon his long term of creditable service.

During the afternoon the members of the surgical staffs presented a continuous series of cases showing the end results of various operations. This also was a great success.

At 7 o'clock the annual meeting was held, when the reports of the treasurer, secretary and nominating committee were presented. The report of the treasurer showed the association was in a good financial condition, with a balance on the right side of over \$600. The report of the nominating committee was accepted and the following were elected for the coming year: W. H. Prescott, president; John L. Ames, vice-president; Gerald Blake, secretary; and E. W. Wilson, treasurer and assistant to the secretary. The nominating committee for the coming year consists of Drs. Libby, Cheever and Manary. The committee for looking after affairs at the hospital is Drs. Manary, Herman and Ohler.

After this meeting adjourned the annual dinner was served in the large room of the Algonquin Club, when over 150 sat down. It was a City Hospital dinner, as no one not having some connection with the hospital at some time was there. The first speaker was the Rev. William Devlin, president of Boston College, who spoke for the Jesuit Fathers, who for over 60 years have served the hospital so faithfully. Dr. Rowen spoke for the Trustees, giving a fine description of the past achievements and future plans. Dr. F. J. Cotton spoke for the surgical side and Dr. W. H. Robey, who claimed to be the senior visiting physician, but few would think he could be from his youthful appearance.

After a vote had been passed to send the greetings of the association to Miss O. M. E. Rowe the meeting closed at 10.30.

Respectfully,
W. H. PRESCOTT.

ADDRESS OF DR. H. S. ROWEN OF THE BOARD OF TRUSTEES OF THE BOSTON CITY HOSPITAL BEFORE THE ALUMNI ASSOCIATION

It is my purpose this evening to present to you very briefly a resumé of the present and recent past activities of the Boston City Hospital.

It opened in '64 with about 200 beds; it now has over 1000. The establishment of its Out-Patient Department was meagre; it now provides most adequately for the wants of nearly 900 daily. It has installed a vast number of new departments and methods. In its evolution there has been a gradual transition from an institution of quasi custodial care to the modern scientific hospital it is today. This briefly has been its history.

These changes are more patent to the older alumni; its onward march has been progressive and reasonably steady.

Early in 1913, Mr. A. Shuman, then President of the Board, invited some members of the Staff to meet His Honor, Mayor Curley. At that meeting the Mayor requested the members of the Staff to form a committee to make a study of the Hospital as to its needs at that time, and for its development during the following twenty-five years. As a result of that conference such a committee was formed and a very complete report, with recommendations, was presented. Most of the constructive work recommended has been carried out, and as the result of an appropriation of \$3,000,000 last year, this program will be completed, and the needs that have arisen since will also be met.

These figures show, in a graphic way, the increase in the Hospital from 1913-14, and 1924-25—

	1913-14	1924-25
Total expenditures	\$616,301.02	\$1,663,038.54
Patients admitted	17,107	28,196

During the past 10 years the outstanding achievements may be summarized as follows:—Old Wards "A" and "E," containing 23 beds, were reconstructed and carried up one story each, making four wards where there were formerly two, and increasing the capacity of the Hospital by 100 beds.

A maternity service was established, which at first grew slowly, but recently its growth has been so rapid that it is impossible to admit all cases applying to the small quarters assigned.

The new surgical services were organized and a continuous Accident Floor service established, so that patients, who were formerly compelled to await the opening of the Out-Patient Department, are treated as they come to the Hospital, at any time, night or day.

During the war, throughout the country, there was an acute shortage of nurses. Grad-

ually, since that time, the Training School has been increasing its number, until today there are more young women in training than ever before in the history of the Hospital.

The ambulance service, then, was horse driven but has now been completely motorized and enlarged. The station was remodeled, fireproofed and sprinkled.

A very important addition was the Diet Kitchen, for the preparation of food for special cases. Here food is weighed and measured and amounts carefully computed for the different types of cases needing special diets.

In 1913-14 the old system of keeping records was in vogue. This old system was abandoned, and a loose leaf system of records was installed.

Formerly it was necessary to transfer the bodies of patients, dying in the wards, across the yard to the Pathological Building. A tunnel was constructed to obviate that necessity.

A fireproof storage house was constructed in the yard on Albany Street.

During this period various new laboratories have been established, such as for kidney function work and blood disease, several for teaching and others for routine ward work. One for the study of immunology was established and equipped, in which the intensive study of immunology in the treatment of asthma is carried out.

For three years two wards were given over to the study of pneumonia, and a laboratory was carried on with a director and assistants to work them. Because of the enormous increase in the number of patients following the war, it became necessary to drop this service, but when the new buildings for which money has been provided are constructed, this service may be reestablished.

Whereas formerly there was only one small portion of the basement sprinkled, all the buildings at the main Hospital and South Department are now completely equipped, and the high pressure system was extended from Washington Street to surround the Hospital, so that the fire hazard in this institution has been reduced to a minimum.

Twenty-five thousand dollars has been appropriated for a laboratory for the intensive study of streptococcus infection, and money provided in the budget for equipping and maintaining the same.

The Electro-therapeutic Department in this Hospital is one of the most noted in the United States, and visitors are constantly coming to the Hospital to study the methods of treatment here.

A Social Service Department was organized and provided for by an organization of progressive women, who are just as active as ever in the work and continue their interest. In a

large measure the cost of maintaining this department has been taken over by the City.

In 1917 Base Hospital No. 7 was organized from members of the Medical and Surgical Staff and graduate nurses of the Boston City Hospital, and was assigned to Tours, in France. During the period of its service over 8,000 wounded soldiers passed through this hospital.

In the boiler room the coal-burning equipment has been completely removed and the boilers completely equipped with oil-burning equipment, and a tank to hold 100,000 gallons of oil was constructed in the yard.

A great deal of work has been carried on among diabetics, and the Boston City Hospital was one of the very first hospitals to receive insulin. In the Out-Patient Department, among the special clinics is one for the treatment of diabetics and their instruction in the use of insulin and diets.

There is also a nutrition clinic for care and treatment, and education of the mothers of underfed or undernourished children.

A great deal of work has been accomplished in the Pathological Laboratory. A microphotographic dark room has been installed, in which some extraordinary photography has been developed.

A Pediatric Service for the care of children has been established, so that children formerly treated in various wards throughout the Hospital are now concentrated in three wards and under the care of a highly organized Pediatric Service. Ward "I" was remodeled and divided into cubicles, with cross partitions, so that the children are first admitted there and retained until all danger of infection is over, and are then transferred to the other wards, minimizing the danger of cross infection.

At the South Department two wards have been completely remodeled into cubicles, so that children suffering from either scarlet fever or diphtheria may be admitted and cared for without danger of cross infection.

A heart clinic has been established and an electrocardiograph purchased and installed to better carry on the study of heart disease.

Through the courtesy of the School Department a teacher has been regularly assigned to the Hospital for the school year whose duty it is to teach children who would otherwise, in many cases, lose their school work. This work has been of very great value.

A library has been established for the children, and a librarian from the Social Service Department distributes books to the wards, and brings to the library such children as can be taken there from the wards without danger to them.

A new telephone switchboard has been established, and in connection therewith a thoro-

phone system for calling doctors and nurses, both of which have greatly increased the efficiency of the Hospital to the public.

One outstanding achievement has been the construction of the Thorndike Memorial Building, which has become famous throughout the medical world, not only in the United States, but abroad. It is the only building of its kind within the confines of a municipal hospital. The first two floors are devoted to X-ray, and have probably the most complete X-ray equipment of any hospital in the United States. The second floor contains beds for patients, who may be sent from any part of the Hospital for intensive study, and the two upper floors are devoted to laboratories, with every possible laboratory appliance needed for the intensive study of disease.

The new Out-Patient Building is another outstanding achievement. It is without question the best equipped out-patient department in the whole country. It has been visited by superintendents of many of the large hospitals in the United States, and is being looked upon as a model for such buildings. All the various specialties are housed therein. At the present time we are caring for approximately 800 patients a day, and this number is increasing rapidly. Two thousand or more patients can easily be treated in this building each day.

These two works are monuments to the foresight and ability of our executive officer, Dr. Dowling,—none realizes this better than the Board of Trustees.

To provide for the over crowding now existing in the Hospital and to better carry on the work by devoting wards to the various specialties, \$3,000,000 has been appropriated by His Honor, the Mayor and the City Council. This will provide for the new construction necessary to adequately provide for the Hospital needs for the next twenty-five years.

Plans have been completed and work will soon be started on the construction of the first of the new group. The new Gynecological and Maternity Building will be on the corner of East Concord and Albany Streets, which is now vacant. Following that Wards "W" and "X" will be carried up four stories for surgical wards, and four stories will be added to Wards "T" and "U," thus allowing four more medical wards. A new medical building of six stories will also be constructed, quarters to house 125 house officers, an addition to the Vose House of 125 rooms, reconstruction of the Pathological Building, and rearrangement of the domestic quarters, kitchen, laundries, etc. When this program is completed over 600 beds will have been added for patients.

The need of these new additions has been felt for some time, and they are in line with what the Trustees contemplate—a thoroughly

careful study of the hospital situation as a whole and the adoption from time to time of carefully devised plans for a real rehabilitation of the institution.

So much for what we may term the material side of our Institution. One prominent in the educational and medical world once stated,—that a hospital is built with men and not with bricks. This point of view is ever before us and we feel fully the importance of great teachers in building and maintaining a hospital of worth. The campaign which we have begun is to provide us with men of the highest ability, for we cannot make such a hospital with beautiful, well-appointed buildings, medical teaching must be one of the big features.

As Trustees of a public fund and of a great public necessity, we feel that we are justified in seeking the counsel and help of men who stand high in their particular field of teaching, men who are setting the high standards that will place this Hospital among the leading ones in this country,—a standard that we, as Trustees, are endeavoring to maintain. Nor is this an easy task today when the large hospitals are actively seeking the best teaching brains. The problem is not one of salary alone, as many of them require laboratory space and equipment with adequate clinical numbers.

Opportunity must be given to our house officers to observe, not only what I may term the ordinary or routine affairs of medical and surgical procedure, but we must aim to cultivate in some of them, at least, the spirit of research—an opportunity for the staff as well as for the student or other scientific workers to follow special lines of investigation—work which competent authorities believe will lead to real contributions to the medical world.

Our aim is to do better, more justly and more generously in the future precisely what is going on today—the best we can for the sick and injured citizens of Boston and others who come within our gates.

MEMORIAL TO ERNEST HAROLD BAYNES

ERNEST HAROLD BAYNES died at his home in Meriden, N. H., about three months ago.

The medical profession is now given the opportunity to aid in carrying on the work to which he devoted the last years of his life.

A national committee with Dr. W. W. Keen as chairman has been formed to establish a memorial to Mr. Baynes, to aid his widow during her life and ultimately to aid the American Association for Medical Progress, which was first organized in Boston as the Friends of Medical Progress.

Few laymen have done as much as Mr. Baynes

to aid scientific medicine and none has ever more unselfishly sacrificed himself in doing what he considered his plain duty.

Always a devoted lover of birds and animals and all mankind he had been the moving spirit in the establishment of bird sanctuaries, in the preservation of the American bison, and in stimulating interest in all wild life. Then becoming interested in the statements of the anti-vivisectionists he investigated for himself. Instead of joining their cause as he had expected to do he became an ardent champion of those who by animal experimentation were devoting their lives to the amelioration of suffering among animals and mankind.

By this step his income as a lecturer on animal

life was almost wiped out. One fanatic in any community could readily prevent an invitation to lecture being sent to such a monster as any man who championed animal experimentation must be.

Undaunted, Mr. Baynes carried on his work though knowing that his end was near.

A letter will soon be sent out appealing for help in establishing the Baynes Memorial, a copy of which appears below. It is peculiarly the privilege of physicians now to help the one left in need of help through the self-sacrifice and devotion to the advancement of medical science of a true gentleman who would ask nothing further than that the work he started be further advanced.

ERNEST HAROLD BAYNES MEMORIAL

*Headquarters: Boston Society of Natural History
Berkeley Street, Boston, Mass.*

Committee

CHARLES W. ELIOT, LL.D.
Cambridge, Mass.

RAY LYMAN WILBUR, M.D.
Leland Stanford University,
California.

JOHN B. BURNHAM
Woolworth Bldg., Broadway,
N. Y. City.

MRS. EDITH ROCKEFELLER
McCORMICK
1000 Lake Shore Drive,
Chicago, Ill.

FRANK BILLINGS, M.D.
100 North State Parkway,
Chicago, Ill.

WALTER B. CANNON, M.D.
Harvard Medical School,
Boston, Mass.

W. W. KEEN, M.D., Chairman
1520 Spruce St., Philadelphia, Pa.

WILLIAM H. WELCH, M.D.
Johns Hopkins University,
Baltimore, Md.

FREDERIC C. WALCOTT
35 Wall St., N. Y. City

MRS. EDWARD W. BIDDLE
The Wellington, Walnut St.,
Philadelphia, Pa.

JONATHAN DWIGHT, M.D.
American Museum of Nat.
Hist., N. Y. City.

WILFRED H. OSGOOD, PH.D.
Field Museum of Nat. Hist.,
Chicago, Ill.

HARVEY CUSHING, M.D.
Peter Bent Brigham Hosp.,
Boston, Mass.

WILLIAM J. MAYO, M.D.
Rochester, Minn.

MRS. CHARLES W. RICHARDSON
1317 Connecticut Ave.,
Washington, D. C.

EVARTS A. GRAHAM, M.D.
Washington University,
St. Louis, Mo.

EDWARD THOMPSON SETON
Greenwich, Conn.

CARL AKELEY
American Museum of Nat.
Hist., N. Y. City.

NATHANIEL ALLISON, M.D.
234 Marlborough St.,
Boston, Mass.

ELLEN F. PENDLETON, LL.D.
Wellesley College, Wellesley,
Mass.

F. A. LUCAS, Sc.D.
American Museum of Nat. Hist.,
N. Y. City.

FRANK OBER, M.D.
234 Marlborough St., Boston,
Mass.

EDMUND SEYMOUR
46 Wall St., N. Y. City.

EDWARD WIGGLESWORTH, PH.D.
Boston Society of Nat. Hist.,
Boston, Mass.

GLOVER M. ALLEN, PH.D.
Museum of Comp. Zoology,
Cambridge, Mass.

FREDERIC H. KENNARD, Treas., Sec., Boston Society of Natural History, Boston, Mass.

Philadelphia, Pa.

Ernest Harold Baynes, author, lecturer, poet, lover of birds and animals and of all mankind, died at his home in Meriden, New Hampshire, January 21, 1925. It was Mr. Baynes who started the Society that saved the American Bison from extinction; who started the first bird club sanctuary at Meriden, N. H., and organized nearly 300 bird clubs in the country; who went to Europe during the World War, and spent many months studying the part taken by animals of the Allied Armies in winning the War; and who did more perhaps than anyone else to stir up popular interest in the great outdoors. Loving animals, he investigated the sensational charges of the anti-vivisectionists, and finding them groundless, gave unstintingly of his time and energy, and made great financial sacrifices, in an effort to combat the anti-vivisection propaganda. Though knowing that death was near, he kept on with his work heroically to the very end.

This Committee proposes to raise a fund of

\$100,000 as a memorial to Mr. Baynes; so much of the income as may be necessary for her comfort, to be paid, at the discretion of the committee, to Mr. Baynes' widow; the remainder, and at her death the principal, to go to the American Association for Medical Progress, that society which Mr. Baynes helped to organize for the promotion of a general appreciation of science in medicine, and in which he was most interested at the time of his death. The fund is to be administered by the First National Bank of Boston as Trustee.

We want your subscription for as much as you can afford, even though it be only \$5.00, to help this important work. Please contribute if you can.

Sincerely yours,

W. W. KEEN.

Note: Your check should be made out to ERNEST HAROLD BAYNES MEMORIAL, and sent to George C. Lee, Jr., First National Bank, No. 426 Boylston Street, Boston, Mass.

LEGISLATIVE NOTES

THE work of the Recess Committee of the Legislature appointed to report on the desirability of changes in the registration laws has apparently been wasted. The original recommendations in the form of three (3) proposed bills were not acceptable to the legislature.

Those parts relating to the practice of medicine and registration of physicians have been discarded or postponed. About the only recognizable residue may be found in a bill relating to the registration of embalmers, the essential feature of which is a provision which will eliminate the present executive officer of that board.

Senate 378, which provided for the compulsory appointment of an osteopathic practitioner on the medical board, has been referred to the next general court. This means much or little, either that it is a concession or an effort to relieve the present legislature of a responsibility and pass the burden on to the next legislature. The proposition is so inherently simple and can be decided by one body of intelligent men as well as by another that this attitude does not promote enthusiastic respect.

The legislature has made an attempt to assist small towns in efforts to meet the present shortage of physicians in *Senate Bill 415*. This bill provides, in four sections, for the employment of a physician in various capacities by towns not exceeding three thousand inhabitants which vote to accept any or all of the sections: In Section 1 an appropriation of five hundred dollars for free residence quarters for a school physician is authorized.

In Section 2 the Selectmen who act as overseers of the poor may appoint the school physician to be their agent.

In Section 3 the Selectmen acting as a board of health may appoint the school physician to be inspector of health.

In Section 4 the Selectmen may appoint the school physician to be the town physician.

These various commissions, together with the revenues which may be derived from practice, should give a reasonable assurance of an income sufficient to support a doctor in comparatively small towns, but there are other conditions which enter into the problems of country life. It will be interesting to note the effect of these provisions and the number of towns which will be inclined to make use of them.

All who have been concerned in the problems of rural practice will be especially interested in getting the testimony of the doctors who are encouraged to settle in the towns operating under these provisions of law. Knowing human nature as doctors do, some will not be surprised if it is found that there are difficulties which may not be entirely overcome by these ingenious plans.

Human nature exists in small communities and a doctor who in addition to practising medicine can function in these four ways without creating distrust or enmity would be a finished diplomat. We are ready to concede that such men exist but we fear that the number is small. We hope the plans will be found to be generally useful.

MISCELLANY

IN MEMORIAM

IN recognition of the great service to the State rendered by Dr. Walter E. Fernald, the Legislature of Massachusetts has changed the name of the Massachusetts School for Feeble Minded to the Walter E. Fernald State School.

APPEAL FOR FUNDS FOR THE BOSTON DISPENSARY

THE Board of Managers of this time-honored institution has issued an appeal for \$90,000 with which to complete the 1925 budget.

This is one of the important medical charities of the city and should be given enthusiastic and liberal support.

NOTES FROM BOSTON MEDICAL LIBRARY

IN 1761 Dr. Turner, Surgeon in Liverpool, wrote "An account of the extraordinary medicinal fluid called Aether" as used in his private practice over a period of several years.

He described it as an ethereal oil produced by the decomposition of the vinous spirit by means of vitriolic acid. According to Turner there were three kinds of ether, the marine, nitrous and vitriolic, named after the mineral acids used in their preparation.

The vitriolic ether was used by Turner as a remedy to be taken internally as well as applied externally in such nervous affections as headache, epilepsy, convulsions and palsy, hysteria, also in gout, rheumatism, digestive disorders, dropsy, and was regarded as a specific in whooping cough.

When taken internally the dose for a grown person was a common teaspoonful in cold water, infants and children from two to twenty-five drops according to age.

Good ether was described as colorless, with a sulphurous smell and rapid evaporation. Pure ether was to be obtained from Mr. Turner at his shop in Liverpool and from his agents in London and Dublin. The Library has acquired a fine copy of the rare Turner pamphlet.

IN 1922, Masson et Cie, Paris, began the publication of a complete edition of the works of Dr. Louis Pasteur. The arrangement adopted

was one that would show the evolution of Pasteur's work.

Volume one contains the work on molecular dissymmetry, volume two that on fermentation and spontaneous generation, and volume three, 1924, is devoted to the studies on wine and vinegar. Volume four, in preparation, will contain the work on diseases of the silk worm, volume five that on beer, volume six on virulent diseases, vaccines and hydrophobia, while volume seven will contain miscellaneous scientific and literary papers. This very important collection may be consulted at the Library.

A recent and most important accession is a fine copy of the "Versehung von Leib, Seele, Ehre und Gut," an anonymous work, printed at Nuremberg in 1489. This particular volume is interesting in more ways than one. It originally belonged to the monastery of St. Peter at Salzburg and has its book plate and classification. It is in a contemporary binding of oak boards and stamped pig skin with embossed clasp which is intact. It contains an early wood-cut depicting a medical scene in which a sick man, with a typical Hippocratic facies, is represented as attended by a physician, jurist and priest. The physician is holding an old style urine glass and the priest with his attendants is administering extreme unction. This work also contains the first so-called universal book-plate which is printed on the reverse of the last folio.

The Vienna Club, founded in 1865 by six Boston physicians, who had resided together in Vienna, during the period 1856-1860, came to an end on the decease of the last member. The original members were, Hasket Derby, Gustavus Hay, B. Joy Jeffries, H. K. Oliver, F. P. Sprague and J. C. White, all graduates of the Harvard Medical School. The meetings of the club were held monthly during the winter season, sometimes at the houses of the members and other times at the clubs or restaurants, and were at first of a scientific character. For the simple suppers given at first, dinners were substituted after a time, which gradually became elaborate feasts. Medical papers ceased to be presented after a few years and occasional skits in prose or poetry and reminiscent sketches of the old life in Vienna were read by the members. Wine was served at all the meetings and the longevity of the members was most remarkable as the six original members all lived to be over seventy years of age.

In 1908 Dr. Derby wrote a most interesting brief history of the club. Its "memorabilia book," which, on the decease of the last member, descended to Drs. C. J. White and G. S. Derby, sons of original members, has been presented to the Library by these two physicians. The volume contains records of the meetings and copies of many of the papers as well as photographs and other material and is of decided historical interest.

X-RAY PHOTOGRAPHS SENT BY WIRE

QUICK X-ray diagnoses by eminent specialists have been made possible by telephoning X-ray photographs. A negative showing the



Print with dark background is a photograph of original X-ray negative of hand, with ring on finger.

bone structure of the human hand was sent from New York to Chicago in seven minutes on Wednesday, April 15. Details were not lost in the procedure, and an accurate examination of the film was possible.



Print with light background is a photograph of positive, printed from unretouched negative as received by wire in Chicago from New York.

Reproductions of the original X-ray film and the copy of it after transmission by telephone are shown herewith.

The possibilities suggested by this feat of electrical engineering are many. We shall be

interested in learning more fully the technic of the transmission of X-rays in this manner.

Illustrations supplied by the General Electric Co., Schenectady, N. Y.

SPRINGFIELD, MASS., SHRINE HOSPITAL OPENS

THE New England Unit of the Shrine Hospitals for Crippled Children, just completed, received its first patients February 21, when a dozen crippled youngsters from many different points were entered. The formal dedication will not be until May, when it will be a part of the spring ceremonial of Melba Temple of Shriners. The first patient formally to be received was a little girl from New Britain, Conn., who came in company with Governor John H. Trumbull of Connecticut and a party of officers of Sphinx Temple of Hartford.—*The Nation's Health*.

RECOGNITION OF BIRTH CONTROL

At the Contraceptive Sessions of the Sixth International Neo-Malthusian and Birth Control Conference held on March 29, 1925, at the Hotel McAlpin, New York, with an overflow meeting at the Waldorf-Astoria, 821 physicians unanimously passed the following resolution:

RESOLVED: "That at this session of the Sixth International Neo-Malthusian and Birth Control Conference, this meeting of American physicians affirms that Birth Control, being a very important and complicated problem requiring scientific study and guidance, comes properly within the province of Preventive Medicine, and that the subject should not only have a place in the programs of County and State Societies and of the American Medical Association, but also become a part of the work of clinics, hospitals, and other medically supervised organizations engaged in scientific study and prevention of disease and crime."

The resolution unanimously passed at the Waldorf-Astoria was presented by Dr. Lawrence Litchfield of Pittsburgh, Pa., and seconded by Dr. S. Adolphus Knopf of New York.

The same resolution unanimously passed at the Hotel McAlpin was offered by Dr. Frederick C. Holden, Gynecologist of Bellevue Hospital, New York, and seconded by Dr. Edward A. Willis, New York.

A paper entitled "Medicine's Responsibilities in the Birth Control Movement" was read at the Conference by Dr. William Allen Pusey.

JAMES F. COOPER,
American Birth Control League, Inc.

WILLIAM HENRY WELCH: TEACHER, LEADER

THE seventy-fifth birthday of William H. Welch, on April 8, was rightly made the occasion

for a nation-wide—even a world-wide—expression of rejoicing in the completion of three-quarters of a century of rare and precious service to the human race. Our felicitations on this occasion are by no means merely retrospective. Dr. Welch is so keen in play of thought, so young in spirit, so vividly sympathetic with progress and achievement, that we may look with confidence for long-continued future leadership and inspiration at his hands. He has already contributed more than any other living American to the cause of medicine and public health.

Dr. Welch is one of the group of pioneers whose lives remind us how recent a thing is the new knowledge which has made possible the conquest of disease. He graduated from Yale in 1870 and from the College of Physicians and Surgeons, New York, in 1875. During the next decade he studied at Strassburg, Leipzig, Breslau and Berlin, in that golden age of bacteriology when the foundation stones of the science were being laid by Pasteur and by Koch. He was one of the first of the little group who brought the new knowledge to America from the laboratories of Germany. In 1884 he was made Professor of Pathology at Johns Hopkins (serving as Dean of the Medical Faculty from 1893 to 1898) and since 1916 he has been Director of the School of Hygiene and Public Health at Baltimore—the first fully equipped institution of its kind in the world.

Of the other offices which he has held, and of the many honors which have been showered upon him, limits of space forbid even an enumeration. It is sufficient to recall that in medical research, in medical education, in public health education and in the actual development of health activities throughout the world, he has played a part second to none. He was the first real teacher of pathology in the United States and one of the first men in any field of medicine who understood and appreciated the meaning of the laboratory method; as teacher of pathology and as president of the Board of Directors of the Rockefeller Institute, he has given a guidance and inspiration felt through the whole field of the medical sciences. As Dean of the Medical Faculty and as a trusted adviser to the General Education Board he has exerted a beneficent influence upon the policies of the best medical schools from London to Peking. In the School of Public Health, he has built up a faculty and a program which will serve as models for all such institutions in the future. As a member of the International Health Board he has taken a leading part in planning a brilliant campaign against preventable disease throughout the four quarters of the globe.

To the American Red Cross he has rendered direct service as a member of its Health Advisory Committee and indirect, but very vital, aid through his constant and loyal devotion to

the cause of public health nursing and of nursing education.

After all, however, it is not of these achievements that we think with peculiar gratitude, but of the man himself—of his clear vision, of his wise counsel, of his ready enthusiasm, of his unfailing helpfulness, of his clarity and generosity of spirit. He is ever ready in kindly encouragement of the work of younger men,—an encouragement which the writer in his own personal case will remember with lifelong gratitude. To talk with Dr. Welch, solves one's problems; to know him, deepens one's faith in human kind. He stands, in mind, as the highest embodiment of the keenness of the scientific intellect and, in soul, as the vital expression of that catholicity and that kindness, for which the Red Cross is the symbol.—*C. E. A. Winslow, Red Cross Courier.*

RECENT DEATHS

ATWOOD.—DR. EDWARD CARLETON ATWOOD, a former Fellow of the Massachusetts Medical Society, died in Boston, April 17, 1925, at the age of 76.

Dr. Atwood was born in Pelham, N. H., September 24, 1848, and was graduated from Dartmouth College in the class of 1871 and from the Long Island College Hospital in 1874. The next year he settled in practice in Westford, Mass., and practised there until 1883, when he moved to Daytona, Fla. He was a Fellow of the State society from 1875 to 1885, when he resigned.

BERRY.—DR. JOHN JAMES BERRY of New Castle, N. H., died at his home in that town April 24, 1925, at the age of 66.

In recent time he had acted as ship's surgeon to vessels plying between New York and South America. He was a graduate of the Bellevue Hospital Medical College in 1878, a member of the New Hampshire Medical Society, Portsmouth Medical Association, New York Pathological Society, American Medical Association, International Medical Congress (being secretary of the Section on Anatomy in 1887), American Public Health Association, and an honorary member of the Fairfield County, Conn., Medical Society. He had been a member of the State Board of Health of New Hampshire since 1887, was of the Board of Commissioners of Lunacy since its organization in 1889, and was visiting surgeon to Portsmouth Hospital since 1886.

He is survived by a widow, two daughters, and a sister, Miss Anna D. Berry of Boston.

HASBROUCK.—DR. CORNELIUS J. HASBROUCK, former president of the Rhode Island Homeopathic Medical Society, died at his home in Bristol, R. I., where he had practised for the past 36 years, on April 26, 1925, at the age of 73. He was a graduate of Albany Medical College in 1873.

LAWLER.—DR. THOMAS JOSEPH LAWLER, a graduate of Harvard Medical School in 1882, was found dead on the floor of a house he owned in Wintrop, April 27, 1925. He had an office in Boston and a residence in Wintrop. Death was thought to have been due to heart disease.

CORRESPONDENCE

OBITUARY NOTICE OF THE DEATH OF MISS JESSIE M. C. HUME

May 1, 1925.

Mr. Editor:

It is with profound regret that we announce the death on April 22, 1925, of Miss Jessie M. C. Hume, head worker, Medical-Social Service Department, Massachusetts Eye and Ear Infirmary, Boston. Miss Hume was born in Scotland and soon after coming to America entered the Malden Hospital Training School for Nurses, where she was graduated in 1896. She was a pioneer in school nursing, having developed and organized the work in Cambridge, where she had charge of the service for ten years previous to her appointment to the Social Service Department at the Eye and Ear Infirmary. She had taught school nursing in the summer sessions of the State Normal School, Hyannis, since 1921.

In these days when our methods for the alleviation of suffering have grown so scientific and even the most sympathetic of us have become somewhat hardened after tale upon tale of misery, it is wonderful to find one who never seemed to lose that personal sympathy and understanding in her contact with people who were really up against the realities of life. Such a person was Miss Hume. Our own personal loss is great, but to those less fortunate than ourselves, who were so cheered and comforted by her unlimited sympathy, her loss cannot be reckoned.

Miss Hume's service at the Eye and Ear Infirmary covered a period of nearly nine years. We have only to read the reports of the Social Service Department to see what she accomplished during those years. But nowhere is there an account of her devotion and real self-sacrifice. Her discouragements were many, but she never lost heart nor wearied. No matter how busy or tired she was always ready to listen with absorbed attention to all our troubles, and to give us the good advice and encouragement we were so anxious for. We shall so miss her keen interest in our lives and in the lives of those whom we are trying to help.

CO-WORKERS OF THE MEDICAL-SOCIAL SERVICE DEPT.,
Massachusetts Eye and Ear Infirmary.

CANCER MORTALITY IN THE MASSACHUSETTS SOLDIERS' HOME

April 23, 1925.

*Medical and Surgical Journal,
Boston, Mass.:*

Your readers may be interested in the following analysis of the cancer mortality in the Massachusetts Soldiers' Home at Chelsea for the ten-year period ending with June, 1924. In the aggregate there were 94 deaths from cancer at an average age of 78 years. The high average age at death is clearly indicative of an aged population, best illustrated by the fact that in 1924 the average age of Civil War inmates, excluding Spanish War veterans, was 81 years, against 73.6 years in 1915. The average number of members during the entire period was 504 per annum. During the first five years there were 48 deaths, equivalent to a rate of about 1800 per 100,000 of population, while during the second half of the period there were 46 deaths, equivalent to a rate of 1930. For both periods combined on the basis of 94 deaths the average rate was 1860. The normal death rate from cancer at ages 75-79 in the United States registration area is about 767 per 100,000, so that the mortality from malignant diseases is apparently decidedly excessive among inmates in the soldiers' homes. To facilitate the study of the subject I will give the rates for the United States registration area. At age 60-64 the rate is 340 per 100,000; at 65-69 it is 467; at 70-74 it is 427; at 75-79 it is 684; at 80-84 it is 826; at 85 and over it is 824. These rates are for 1914 and

somewhat below prevailing rates at the present time, but they certainly would not exceed 1000 per 100,000 for any age period over 60.

Of the 94 deaths in question 12 occurred at the age under 70 years, 52 at ages 70-79, 29 at ages 80-89, and one at age of 90 and over. The most interesting results of the analysis are the rather extraordinary distribution of cancer deaths by particular organs and parts. The distribution has been as follows: Scalp, 1; face, 10; cheek, 1; nose, 1; mouth, 1; jaw, 4; tongue, 8; lips, 6; or a total of 32 of the head, including the buccal cavity. There was one case from cancer of the neck, 1 of the tonsils, 4 pharynx, 1 lungs, 1 breast; there were 14 deaths from cancer of the stomach, 3 liver, 1 pancreas, 2 bile duct, 9 bladder, 2 gall stones, 1 kidney, and 9 of the prostate. There was one case of cancer of the abdomen, 1 intestines, 5 colon, and 2 of the rectum. Finally, there were 3 deaths from sarcomas and 1 death from carcinoma not otherwise specified. It will be most interesting to have comparative data for other aged populations, particularly such as are under institutional care. While the average age at death was 78 years, it was 79.4 for cancer of the face, 73.2 cancer of the tongue, 82.7 cancer of the stomach, 71.0 cancer of the bladder, and 74.4 from cancer of the prostate.

The largest proportion of cancer deaths occurred in organs or parts readily accessible to a medical examination, suggestive of the importance of more qualified attention to the earliest indications of malignant diseases at the ages under institutional care. As stated previously, 32 of the cancer deaths, or about one-third of the entire number, occurred on the face, the cheek or in the buccal cavity. It will be interesting to know what has been the experience of the Soldiers' Home in the treatment of cancer cases receiving early and qualified attention, for in most of the cases which have proved fatal it is a fair assumption that radical treatment was delayed until the cases had reached an inoperable condition.

Very truly yours,
F. L. HOFFMAN.

CREDIT TO DR. D. A. SINCLAIR

Editor, Boston Medical and Surgical Journal:

Since the publication of our paper, "Intracarotid Route in the Treatment of General Paresis," we have learned that Dr. D. A. Sinclair of New York City has done similar work in 1916 and 1917. His paper, entitled "Intra-arterial Infusion of Neosalvarsan for the Treatment of Cerebrospinal Syphilis," appeared in *The Medical Times*, issue of April, 1917.

Dr. Sinclair reported some work on animals and gave three injections of neosalvarsan into the internal carotid artery in a case of general paresis, with good results. The injections were made by dissecting the neck and isolating the internal carotid artery.

Dr. Sinclair's work antedates that of Knauer and of the other authors mentioned in our paper, and as far as we know his publication was the first mention of this matter in the literature.

Will you kindly publish this letter in order that Dr. Sinclair may get proper credit for his work?

Very truly yours,

HENRY L. HIRSCH,
ABRAHAM MYERSON,
ROY D. HALLORAN.

April 28, 1925.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

DISEASES REPORTED FOR THE WEEK ENDING
APRIL 25, 1925

Chickenpox	142	anti-rabic treatment
Diphtheria	91	ment
Dog-bite requiring	2	Epidemic cerebrospi-

. nal meningitis	1	Scarlet fever	270
German measles	220	Septic sore throat	2
Gonorrhea	78	Syphilis	35
Hookworm	1	Suppurative conjunc-	
Influenza	34	tivitis	17
Measles	1,093	Tuberculosis, pulmo-	
Mumps	66	nary	116
Ophthalmia neonato-		Tuberculosis, other	
rum	30	forms	23
Pneumonia, lobar	143	Typhoid fever	11
		Whooping cough	127

CONNECTICUT DEPARTMENT OF HEALTH MORBIDITY REPORT FOR THE WEEK ENDING

APRIL 18, 1925

Diphtheria	47	Measles	313
Last week	27	Last week	71
Diphtheria bacilli		Whooping cough	124
carriers	7	Last week	68
Scarlet fever	100	Cerebrospinal. men.	1
Last week	130	Chickenpox	70
Encephalitis epid.	1	Poliomyleitis	1
German measles	43	Septic sore throat	1
Influenza	12	Tuberculosis (pul.)	36
Mumps	54	" (other forms)	7
Paratyphoid fever	1	Chancroid	1
Pneumonia (broncho)	37	Gonorrhea	9
Pneumonia (lobar)	62	Syphilis	21

MORBIDITY REPORT FOR THE WEEK ENDING APRIL 25, 1925

Diphtheria	24	Conjunctivitis inf.	1
Last week	47	German measles	23
Diphtheria bacilli		Influenza	17
carriers	31	Mumps	11
Scarlet fever	81	Pneumonia (broncho)	32
Last week	100	Pneumonia (lobar)	31
Typhoid fever	1	Poliomyleitis	2
Last week	0	Septic sore throat	6
Measles	89	Trichinosis	1
Last week	313	Tuberculosis (pul.)	40
Whooping cough	91	" (other forms)	7
Last week	124	Gonorrhea	23
Chickenpox	24	Syphilis	28

RHODE ISLAND STATE BOARD OF HEALTH CONTAGIOUS DISEASES REPORTED FOR THE WEEK ENDING

APRIL 4, 1925

Diphtheria	14	Scarlet fever	30
Measles	26	Mumps	1
Whooping cough	16	Typhoid fever	1
German measles	2	Smallpox	12
Influenza	10	Pneumonia	8

CONTAGIOUS DISEASES REPORTED FOR THE WEEK ENDING APRIL 11, 1925

Diphtheria	9	Scarlet fever	34
Measles	10	Smallpox	1
Whooping cough	3	Influenza	10
Chickenpox	23	Septic sore throat	1
German measles	2	Mumps	1
Pneumonia	2	Malaria	1

NEWS ITEMS

DR. JOHN A. CECONI UNANIMOUSLY ELECTED MEDICAL HEAD OF BOSTON PUBLIC SCHOOLS

Dr. Ceconi, graduate of Tufts Medical School, 1904, has been elected director of the bureau of communicable diseases of the Boston Health Department by a unanimous vote of the

Boston School Committee at a special meeting. The position has been held for some years by Dr. William H. Devine who recently resigned.

Dr. Ceconi served the city as medical inspector from 1906 to 1913 during which time he inaugurated the first preventive medical campaign on posture, tuberculosis and preventable disease ever conducted in the Boston Public Schools. In 1913 he became medical inspector and diagnostician of the Boston Health Department.

He is a member of the American Medical Association, Massachusetts Medical Society, American Public Health Association and Massachusetts Association of Boards of Health, and has written various epidemiological papers for medical journals.

DR. JOHN H. CAULEY was recently added to the list of Boston school physicians.

NOTICE

Notices of meetings must reach the JOURNAL office on the Friday preceding the date of issue in which they are to appear.

REPORTS AND NOTICES OF MEETINGS

NORFOLK SOUTH DISTRICT MEDICAL SOCIETY

ANNUAL MEETING Norfolk County Hospital, South Braintree, Thursday, May 7, 1925, 12:00 noon, election of officers. Address by the President. A meeting of the Censors will be held at 11:30 A. M.

C. A. SULLIVAN, M.D., Pres.,
South Braintree.
N. R. PILLSBURY, M.D., Secy.,
South Braintree.

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

ANNUAL MEETING at the Tavern, Gloucester, Wednesday, May 13th, at 6:30 P. M. Speaker, Dr. Louis I. Harris, Director of Preventable Diseases, New York.

RALPH E. STONE, Secretary.

BRISTOL SOUTH DISTRICT MEDICAL SOCIETY

THE Annual Meeting will be held in the Fall River Public Library, on Thursday, May 7th, 1925, at 5 P. M.

Paper by Dr. Timothy Leary. Subject:—Alcohol.

The nominating committee reports as follows:

President, E. F. Curry; Vice President, S. E. Donovan; Secretary-Treasurer, G. E. Borden; Commissioner of Trials, H. A. Allen;

Censors, C. J. Leary (Supervisor), D. D. Pratt, F M Howes, S. V. Merritt, W. F. MacKnight. Councillors, R. B. Butler, E. F. Cody, (Nominating) A. B. Cushman, G. H. Hicks, C. J. Leary, J. H. Lindsey, W. A. Neild, G. L. Richards, (Alternate) I. N. Tilden.

The Censors will meet these applicants for membership at 3:30 P. M.: I. Rudolph, F. H. Robinson, F. A. Duvally, E. A. Lafreniere, J. E. Gross, H. Barnes, J. B. Webster, E. C. Kellogg, J. F. Mahoney, F. J. Piper.

GEORGE E. BORDEN, *Secretary*.

WORCESTER DISTRICT MEDICAL SOCIETY

THE annual meeting will be held on Wednesday, May 13, at the Worcester Country Club. Program:

- 3 P. M. Golf tournament.
- 5 P. M. Business meeting.
- 6:30 P. M. Dinner.

After the dinner the Annual Oration will be delivered by Dr. M. J. O'Meara.

P. H. COOK, *Secretary*.

NEW ENGLAND PEDIATRIC SOCIETY

THE ninety-second meeting of the New England Pediatric Society will be held at the Boston Medical Library on Friday, May 8, 1925, at 8:15 P. M.

The following papers will be read:

- 1. The Dick Test and Scarlet Fever Antitoxin, Adrian Boueart, M.D., Boston.
- 2. Biologic Products and Scarlet Fever, Benjamin White, Ph.D., Boston.

Light refreshments will be served after the meeting.

KENNETH D. BLACKFAN, M.D., *President*. JOSEPH GARLAND, M.D., *Secretary*.

THE BOSTON HEALTH LEAGUE

THE next meeting of the Boston Health League will be held at the North End Health Unit on Wednesday, May 13, 1925, at 3:45 p. m. The subject of the afternoon is "The Health of the Adult" and it will be taken up from the two viewpoints: Health Education and The Periodic Health Examination. This is the last of a series of topics studied by the Health League this winter, emphasizing in turn the various programs essential for the promotion of health.

THE TRUDEAU SOCIETY

THE next meeting of the Trudeau Society will be held at Sprague Hall, Boston Medical Library, on May 19, at 8:15 p. m. Dr. D. C. Jarvis of Barre, Vt., will speak on the subject of "Pneumoconiosis" illustrated with X-ray films. This subject is attracting widespread attention as an industrial disease at the pres-

ent time. There is no greater authority in this country than Dr. Jarvis so that the meeting will be an interesting one.

The medical profession is invited to attend.
Olin S. Pettingill, Secretary.

CHILDREN'S HOSPITAL
300 Longwood Ave., Boston

THE visiting staff of the Children's Hospital will hold a clinical meeting in the amphitheatre of the Hospital, Friday, May 8, 1925, at 4.30. Demonstrations of Cases. You are cordially invited to attend.

NEW ENGLAND HEART ASSOCIATION

THERE will be a meeting of the New England Heart Association at the amphitheatre of the Peter Bent Brigham Hospital, Thursday, May 21, 1925, at 8:15 P. M. Subject: "Clinical Experience with Hearts in Hyperthyroidism." Speaker: Dr. Burton E. Hamilton.

NEW ENGLAND SURGICAL SOCIETY

THE eighth annual meeting of the New England Surgical Society will be held in Springfield, Massachusetts, October 2nd and 3rd, 1925.

The tentative program is as follows:

FRIDAY, OCTOBER 2ND

9:00-10:00 A. M. Operative Clinic, Springfield Hospital.

10:30-12:00 M. Dry Clinic, Springfield Hospital.

12:30 P. M. Luncheon at Springfield Hospital.

1:30-4:30 P. M. Literary Program, Assembly Hall, Springfield Hospital.

4:45 P. M. Start to Mount Tom.

7:00 P. M. Annual Dinner, Summit House, Mount Tom.

SATURDAY, OCTOBER 3RD

9:00-10:00 A. M. Operative Clinic, Mercy Hospital.

10:30-12:00 M. Dry Clinic, Mercy Hospital.

12:00 M. Inspection of Shriners Hospital.

1:00 P. M. Luncheon at Mercy Hospital.

2:00 P. M. Literary Program, Assembly Hall, Mercy Hospital.

Headquarters—Hotel Kimball. Information desk to be maintained at the hotel.

It is time now to make up the Literary Program, and each member of the Society is requested to consider this letter a personal invitation to take part. Kindly communicate with the Secretary before the first of May, giving him some idea of what may probably be expected from you in the way of a paper for the program.

The committee of arrangements is made up of our Springfield members. Dr. Frederick B. Sweet is chairman.

ERNEST A. WELLS, Secretary.

A PHYSIOLOGICAL CONFERENCE will be held Wednesday, May 13, in the Bowditch Library, Building C, Harvard Medical School, at 4 P. M.

Title:—"A Study of the Diuretic Action of Acid Producing Salts." Speaker: Dr. James Gamble.

THE ANNUAL MEETING OF THE MASSACHUSETTS TUBERCULOSIS LEAGUE

THE annual meeting of the Massachusetts Tuberculosis League was held in the auditorium of the John Hancock Building in Boston on Friday morning, April 24, and included the reports of the executive secretary and treasurer and the presidential address. Dr. Edward O. Otis, retiring president, who has been in this office for the past six years, outlined anti-tuberculosis work and accomplishments and emphasized the important place of the League in this work. Dr. C. J. Hatfield, president of the National Tuberculosis Association, was present and brought the greetings of his association, preliminary to a longer story at the afternoon meeting.

The business of the general meeting included the election of officers for the ensuing year, with this result: president, Dr. Kendall Emerson; vice-president, Dr. George I. Lee; honorary vice-presidents, William Cardinal O'Connell, Dr. Eugene R. Kelley and Dr. Vincent Y. Bowditch; treasurer, Arthur Drinkwater; assistant treasurer, Romney Spring; and clerk, Robert C. Spencer.

The directors at large numbering twenty-five, who were elected, included the president, vice-president and treasurer, ex-officiis, and the following names:

Dr. Vincent Y. Bowditch, Boston; Dr. Walter P. Bowers, Clinton; Dr. Robert Carpenter, North Adams; Dr. Parker Cort, Springfield; Dr. Francis G. Curtis, West Newton; Mr. Frederic Edwards, Springfield; Dr. Charles B. Fuller, Waltham; Mr. William Goodell, Lowell; Mrs. John D. Henry, Boston; Dr. William O. Hewitt, Attleboro; Dr. George S. Hill, Boston; Dr. Murray P. Horwood, Newton; Dr. Adam S. McKnight, Attleboro; Mrs. Charles W. Martin, Medford; Dr. Edward O. Otis, Boston; Dr. Sumner H. Remick, Reading; Mr. John Ritchie, Malden; Mr. George L. Richards, Malden; Dr. Arthur K. Stone, Framingham; Mrs. Mabel Greeley Smith, Cambridge; Miss Margaret Weir, Beverly; Dr. John M. Wise, New Bedford.

In addition the names of other directors nominated by the different affiliated associations, as their representatives on the board, were formally elected.

A feature of the meeting was the presentation to Dr. Otis of a silver cup as a token of esteem by his fellow workers in the League, many of whom were represented in the subscriptions for its purchase.

In the afternoon the new elected board of directors gathered at the University Club for its meeting as prescribed by the constitution. Dr. Otis presented the new president, Dr. Emerson, who spoke very briefly and gave place to Dr. Hatfield, whose address discussed in some detail the work of the N. T. A., emphasizing the necessity for all workers to pull together.

The business of the session included the election of two members to the executive committee to take the place of others expiring by limitation. The members selected were, Dr. Walter P. Bowers and Dr. A. K. Stone. After considerable discussion it was voted to pay to the League for its budget of 1926 the amount of fifteen per cent. of the seal sales in the State during December of the present year. The executive committee took under advisement the matter of the budget for the current year, the funds for which are already in hand. The directors' meeting was unusually well attended, representatives being present from every section of the State.

MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH

THE regular quarterly meeting of the Association was held April 23 at the 20th Century Club.

Motion of Mr. McGrath laid on the table until April meeting was as follows:—That it is the sense of this meeting that cases of Venereal Disease be reported to local boards by number first, and failing to continue treatment, or becoming incorrigible, then by name and address.

The above motion furnished the topic for discussion at this meeting, and the following men took part therein.

Dr. George H. Bigelow of Mass. State Dept.
Dr. C. Morton Smith of Harvard Med. School.
Mr. A. A. Robertson of Quincy Board of Health.

Dr. E. R. Kelley, Commissioner Public Health.
Dr. C. V. Chapin, Supt. of Health, Providence,
R. I.

B. R. Richards, S. B., Director Dept. of Health,
Albany, N. Y.

Dr. Brunett, Am. Social Hygiene Ass'n.

Dr. G. H. Bigelow discussed smears and cul-tures and their legal aspect, particularly showing that the courts recognize smears taken "in good faith" by physicians as good evidence to discharge suit against him.

Mr. A. A. Robertson of Quincy explained his questionnaire and read many replies from physicians. Dr. Chapin and Dr. Kelley both emphasized the point that Health Boards must rely on the good will and coöperation of the physicians. Dr. Chapin said, "Report to local boards and advocated strong powers for local boards. Venereal cases should be reported just as other contagious diseases."

Dr. Brunett of New York believed in the importance of smears and that these should be sent to State Laboratories in all cases. Dr. Perry advised a thorough explanation to patients of the attitude of the state and said this usually resulted in patients following the treatment faithfully. He thinks old cases, particularly in potential parents, should be under strict control. Any case calling for treatment by Wassermann positive test should be reported and looked after carefully.

Dr. G. H. Bigelow urged that physicians in general be encouraged and instructed to back up local health boards and State Departments. Dr. Mowbridge favored a questionnaire to members of the Massachusetts Medical Society to bring out their ideas of methods of reporting. Dr. Colby advised that women with cervical disease, and men with old long standing chronic discharge be reported as well as new infections. He likes to report by number rather than by name.

Dr. M. V. Safford said: Let the M.D.'s use their common sense in diagnosis from clinical symptoms and discard too much reliance on laboratory reports.

Dr. Withington: Local sentiment in small towns is against reporting by name and that small town Boards of Health are not very efficient in general.

Mr. McGrath's motion was put to the meeting and vote resulted as follows: Yes—22, No—1.

B. R. Richards, S. B., Director, Department of Health, Albany, N. Y., spoke on "Practical Value of Publicity to the Health Officer." In this he favored giving reporters the best possible statements as to methods of health work that can be supplied. Reporters will coöperate and be of great aid in putting over good health education. Doctors and Health Authorities and Boards of Health should give public instruction which is sound, for if they don't quacks or other irregulars will mislead the people. Health Boards must give *straight* health news to papers and magazines.

W. H. ALLEN, M.D., *Secretary.*

MEETING OF THE HARVARD MEDICAL SOCIETY

THE Harvard Medical Society met at the Peter Bent Brigham Hospital, April 28th. A case was demonstrated by Dr. Munroe: A ne-

gro of fifty-two years of age entered the Hospital complaining of a cough and pain in the right chest. His white count was elevated and there was a moderate tachycardia. The X-ray showed a large mass to the left of the sternum, and an area of consolidation in the right chest. The mass was found to be anterior and did not pulsate. These findings suggested a neoplasm with surrounding inflammation.

The meeting was addressed by Dr. Evarts A. Graham, Professor of Surgery, Washington University, St. Louis, Mo. Dr. Graham spoke on "The Gall Bladder, An Old Subject, From Some Newer Points of View." He stated at the beginning of his remarks that cholecystitis is now recognized as the most frequent cause of dyspepsia, being twice as frequent as peptic ulcer as a cause. This association remains entirely unexplained.

An erroneous conception has become widespread, that the mucous membrane of the gall-bladder is the part mainly involved in cholecystitis. On the contrary, it is never limited to the mucous membrane and is only exceptionally most marked in that tissue. The most extensive inflammatory process is more often in the peripheral layer of the organ. Interstitial cholangitis would be a better name for the condition, as the inflammation almost always involves the whole biliary system. Hepatitis has been shown to be a constant accompaniment. In fact, there is good evidence that the hepatitis is primary and that the inflammation spreads to the wall of the gall-bladder by way of the lymphatics. A similar explanation may be given to such conditions as pancreatitis and some cases of appendicitis.

Not all cases of cholecystitis are of lymphatic origin. Some are of hematogenous origin. A long time ago, Dr. Cushing showed that the gall-bladder could not be infected without injury to its mucosa. This work has been abundantly confirmed.

Regarding the diagnosis of gall-bladder lesions, the X-ray offers the best hope at the present time. In the past most cases have been overlooked in the early stages. In the future, cholecystography will probably become as helpful in diagnoses as pyelography.

Of the various substances used experimentally to produce a shadow of the gall-bladder, sodium tetra-iodophenolphthalein has proved to be the most satisfactory up to the present time. The great difficulty has been to obtain this compound in pure form. The impure forms are more or less toxic and some of them extremely so. With greater care in the manufacture of this substance, the difficulty is being overcome.

Dr. Graham has found that 0.05 gm. of the salt per kilo. of body weight gives a satisfactory shadow. Practically all of the halogen content of the compound injected may be recovered in the bile, showing that it is excreted solely by

the liver. Intravenous injection has an advantage over oral administration because it insures that the full amount reaches the liver and besides avoids the laxative effect of the compound.

It is essential that digestion should not be in progress after the injection, since the bile would not be retained long enough to produce a good shadow. 3.5 or 3 grams of the compound are dissolved in 28 or 30 c.c. of water. The solution is filtered and sterilized. It is given in the morning in two doses one-half hour apart. Breakfast and lunch are omitted and proteins are not given with the evening meal. Water may be taken freely. The flow of bile may be diminished by giving bicarbonate by mouth. X-rays are taken four and eight hours after the injection and then every eighth hour until thirty-two hours have elapsed.

Great skill is required in the interpretation of the plates. The normal gall-bladder will show a faint outline at the end of seven hours. After twenty-four hours it is distinct but smaller and then diminishes in size and fades gradually. Failure to obtain any shadow indicates definite pathology of the biliary system. Abnormalities of less degree are shown by late appearance of the shadow, faintness of outline, mottling, irregularity of outline, failure to diminish in size, etc.

Its sensitiveness to slight changes makes cholecystography of great value. Over ninety-six per cent. of cholecystographic diagnoses have been found to be correct. In Dr. Graham's series of cases there was no instance of severe reaction from the use of the tetra-iodo compound. In over one thousand cases throughout the country no death has occurred from its use. A sharp fall of blood pressure has occurred in a few cases, but this was only a temporary phenomenon.

Dr. Graham completed his address with a series of slides, demonstrating the lymphatic connections of the gall-bladder, the sacculi in the walls of the common and hepatic ducts, and the varying types of shadow produced by normal and pathological gall-bladders with the new method of cholecystography.

The programme of the evening was completed by an interesting historical sketch, presented by Dr. Warren Stearns. Dr. Stearns reviewed the life of Dr. Joseph Foster, a physician who practised in New England during the early years of the last century. To make the picture more realistic, Dr. Stearns appeared in the attire of this early physician, read some of his private papers and exhibited his medicine-case containing a variety of old-fashioned remedies.

REUNION AND DINNER OF THE MEDICAL OFFICERS OF THE WORLD WAR

An attractive feature of the annual meeting of the American Medical Association at Atlantic City will be the reunion of the medical men who served their country in the army and navy during the World War,

to renew the memories, friendships and associations of those eventful days. The chief surgeon of the A. E. F. will be there, and the president of the Association of Military Surgeons, Surgeon-General Hugh E. Cumming, and other officers of the association, under whose auspices the meeting will be held. An effort will be made to group together those who served in the same organizations, and so it is requested that reservations be made as early as possible, and that comrades state in writing for them the base hospital or other medical unit to which they belonged. Write for tickets to Colonel Burt R. Shurly, Med.-Res., U. S. A., 62 West Adams Avenue, Detroit, Michigan.

Time and place: May 27, at 7 P. M., at the Ritz-Carlton Hotel, Atlantic City.

Members of the Association of Military Surgeons are requested to wear the badge of the association.

THE NATIONAL ASSOCIATION FOR THE STUDY OF EPILEPSY will meet at the Hotel Jefferson, Richmond, Va., May 11-12, 1925.

This meeting immediately precedes the sessions of the annual meeting of the American Psychiatric Association, which are to be held on May 12-15. Papers will be presented by Doctors Clark, Tilney, Gibbs, Menninger, Damon, Tucker, Patterson, Brantham, Jordan, Boudreau and others.

SOCIETY MEETINGS

DISTRICT MEDICAL SOCIETIES

Franklin District Medical Society

The next meeting of the Franklin District Medical Society will be held on the second Tuesday in May.

Hampshire District Medical Society

The next meeting will be held the second Wednesday in May.

Middlesex East District Medical Society

Wednesday, May 13. Colonial Inn, North Reading.

Norfolk South District Medical Society

Meetings will be held the first Thursday of each month to May, inclusive, at 12 noon, at the Norfolk County Hospital, South Braintree.

Worcester District Medical Society

May 14, 1925. Annual meeting.

If you desire further information in regard to these meetings write to the Secretaries of the District Medical Societies (listed on page II of the Advertising Section). The Massachusetts Medical Society Directory contains their addresses.

NEW ENGLAND STATE MEDICAL SOCIETIES

The annual meetings of the New England State Medical Societies are scheduled as follows:

Connecticut State Medical Society—Bridgeport, May 20-21, 1925.

Maine Medical Association—Bar Harbor, June 23-25, 1925.

Massachusetts Medical Society—Boston, June 9-10, 1925.

New Hampshire Medical Society—Manchester, May 19-20, 1925.

Rhode Island Medical Society—Providence, June 4, 1925.

Vermont State Medical Society—St. Johnsbury, Oct. 15-16, 1925.

BOSTON MEDICAL LIBRARY

RECENT ACCESSIONS

Bauer, T., and Beck, O. *Atlas der Histopathologie der Nase und ihrer Nebenhöhlen*. Lief. 1-2. Lpz., Kabitzsch, 1924.

Beer, G. R. de. *Growth*. Lond., Arnold, 1924.

Billroth, T. *The medical sciences in the German universities*. Translated from the German. N. Y., Macmillan, 1924.

Birk, W., and Schall, L. *Strahlenbehandlung bei Kinderkrankheiten*. Berl., Urban, 1924.

Bloch, M. *Les rois thaumaturges; étude sur le caractère surnaturel attribué à la puissance royale particulièrement en France et en Angleterre*. Strasb., 1924.

Bond, C. J. *The leucocyte in health and disease*. Lond., Lewis, 1924.

Braus, H. *Anatomie des Menschen*. V. 2. Berl., Springer, 1924.

Bumke, O. *Lehrbuch der Geisteskrankheiten*. 2 ed. Mün., Bergmann, 1924.

Callomon, F. *Die Nichtvenerischen Genitalerkrankungen*. Lpz., Thieme, 1924.

Celli, Q. *La medicina Greca nelle tradizioni mitologiche e omeriche*. Roma, 1923.

Coombs, C. F. *Rheumatic heart disease*. Bristol, Wright, 1924.

Cushny, A. R. *The action and uses in medicine of digitalis and its allies*. Lond., Longmans, 1925.

Dukes, C. Lord Lister (1827-1912). Lond., Parsons (1924).

Elsberg, C. A. *Tumors of the spinal cord and the symptoms of irritation and compression of the spinal cord and nerve roots*. N. Y., Hoeber, 1925.

Faust, E. C., and Meleney, H. E. *Studies on schistosomiasis japonica*. Balt., Am. Jr. of Hyg., 1924.

Fitzwilliams, D. C. L. *On the breast*. Lond., Heinemann, 1924.

Flexner, A. *Medical education. A comparative study*. N. Y., Macmillan, 1925.

Freud, S. *Collected papers*. Authorized translation. 2 v. Lond., 1924.

Funk, C. *Die Vitamine ihre Bedeutung für die Physiologie und Pathologie*. 3 ed. Mün., Bergmann, 1924.

Gross, O., and Guleke, N. *Die Erkrankungen des Pankreas*. Berl., Springer, 1924.

Handbuch der experimentellen Pharmakologie. Hrsg. von A. Heftner. V. 2, Pt. 2. Berl., Springer, 1924.

Handbuch der Geburtshilfe. Hrsg. von A. Döderlein. 2 ed. Mün., Bergmann, 1924.

Handbuch der Kinderheilkunde. Hrsg. von M. v. Pfaundler und A. Schlossmann. 3 ed., V. 4. Lpz., Vogel, 1924.

Handbuch der Salvarsantherapie. Hrsg. von W. Kolle und K. Zieler. V. 1. Berl., Urban, 1924.

Handbuch der Zahnhelkunde. V. 2. *Konservierende Zahnhelkunde*. Hrsg. von A. Kantorowicz. 2 ed. Mün., Bergmann, 1925.

Helmholtz, H. L. F. *Helmholtz's treatise on physiological optics*. Translated from the third German edition. V. 2. (Menasha.) Optical Soc. of Amer., 1924.

Heredity in nervous and mental disease. An investigation by the Association for research in nervous and mental disease. N. Y., Hoeber, 1925.

d'Herelle, F. *Immunity in natural infectious disease*. Authorized English edition by G. H. Smith. Balt., Williams, 1924.

Hirsch, I. S. *The principles and practice of Roentgen therapy*. N. Y., 1925.

Hirsch, S. *Die peripheren Blutgefäße im Röntgenbild*. Frankf. a. M., Keim, 1924.

Hönigmann, G. *Das Wesen der Heilkunde*. Lpz., Meiner, 1924.

Howell, M. *Rats and how to destroy them*. Lond., Bale, 1924.

Jackson, C. M. *The effects of inanition and malnutrition upon growth and structure*. Phila., Blaikiston (c1925).

Jochmann, G. *Lehrbuch der Infektionskrankheiten*. 2 ed. Berl., Springer, 1924.

Jüngling, O. *Röntgenbehandlung chirurgischer Krankheiten*. Lpz., Hirzel, 1924.

Kantorowicz, A. *Klinische Zahnhelkunde*. Berl., Meusser, 1924.

Kapff, S. v. *Die Säure-Therapie, ihre Entstehung, wissenschaftliche Begründung und praktische Anwendung*. Mün., Gmeinl, 1924.

Kappis, M. *Allgemeine und spezielle chirurgische Diagnostik*. Berl., Urban, 1924.

Keining, E. Mesenchymale Reiztherapie bei Infektionskrankheiten. Mün., Gmelin, 1924.
Kestner, O., and Knipping, H. W. Die Ernährung des Menschen. Berl., Springer, 1924.

BOOK REVIEWS

Gonorrhoea. By DAVID THOMSON. 536 pages; nearly 45 illustrations. Cloth, \$12.75.

A deep, thorough research into all phases of the problems presented in gonorrhoea. There are six divisions. The sixth consists of about a hundred pages devoted to the clinical manifestations and the practical modern treatment of this disease, most thoroughly presented by a collaborator. The other five sections deal with the bacteriology, the anatomy, pathology, morbid histology and cytology of gonorrhoea; the clinical pathology of local and systemic infections; also the problems of immunity and the complement fixation test; vaccine therapy, serum therapy, chemical therapy, electro- and thermo-therapy; prophylaxis and abortive treatment.

There is no more exhaustive treatise of gonorrhoea, due to the deep investigations of the author and his collaborators together with the great care in dealing with discussions of disputed problems. A book of reference for anyone interested in this subject.

Practical Surgery Illustrated. By VICTOR PAUCHEZ. London: Ernest Benn Limited, 8 Bouvier St., E. C. 4, 1925. Translated by F. R. B. ATKINSON, M. D., C. M., (Edin. Univ.) With an Introduction by SIR CHARLES GORDON WATSON, C. M. G., F. R. C. S., Surgeon and Joint Lecturer in Surgery, St. Bartholomew's Hospital.

Medium Svo. In Six Volumes, self-contained and obtainable separately. Each volume contains over 250 drawings from life made during the actual course of the operation in question.

First four volumes now ready. Price 18s. 6d. net each.

"These books admirably display many operations as carried out by the author, and do not pretend to be a general text-book of operative surgery. They are illustrated with a series of pictures, drawn from life, demonstrating the various stages of each operation, with their descriptions under each picture and more complete details in the text . . . the indications for such procedures and the after-care of the cases are admirably dealt with . . . a very useful adjunct to the library of the operating surgeon . . . a great asset to surgical literature."—*St. Bartholomew's Hospital Bulletin*.

SYNOPSIS OF CONTENTS

Vol. III.: Indications for Radicotomy (J. A. Sicard)—Technique of Posterior Radicotomy

(M. Robineau)—The Operative Treatment of Recent Fractures (Ch. Dujaire)—Cancer of the Tongue—Treatment of Goitres—Surgery of the Stomach—Gastro-pyloromy for Pre-pyloric Ulcer—Tumours of the Large Intestine—Adenoma of the Prostate.

Vol. IV.: Recurrent Luxation of the Shoulder—Tumours of the Breast—Duodenal Ulcer—Surgery of the Biliary Passages—Appendectomy—Cancer of the Caecum—Iliac anus—Serious Colitis—Cicatricial Stricture of the Rectum—Recto-vaginal Fistulae—Treatment of Retroversion (L. Dartigues)—Perineal Hysterectomy for Cancer of the Cervix Uteri—Aseptic Tumours of the Adnexa.

These two volumes conform in excellence with the two preceding them. The types of operation described are often very unusual and original. The drawings are mostly sketch drawings in outline but are excellently well done and very descriptive of the text. These books are extremely valuable as reference books for original surgical procedures, and of especial value when one wishes to look up any unusual, or new, or extremely radical surgical procedure. They are a valuable addition to our surgical library.

Clinical Psychology. By LOUIS E. BISCH, M. D., Ph. D. Baltimore: Williams and Wilkins Co., 1925.

The term "clinical psychology," although open to a number of objections, has apparently come into general use. Certainly this excellent book on the subject by Dr. Bisch will help to make the term secure in medical literature. The definition given by the author is simply, "psychology based on clinical experience." He rightfully considers that a qualified clinical psychologist should have some medical training. The physician, on the other hand, should have training in psychology. The sad experience that California has had with the so-called Clinical Psychologist should be a warning to the other states. No simple reading of this book, good as it is, plus the attendance at a few clinics ought to qualify any person as a psychiatrist, with powers to diagnose and commit the feeble-minded. Dr. Bisch thinks, however, that the ideal arrangement is for the psychologist to work with the physician, an arrangement now employed at all progressive hospitals.

The book grew out of a course of lectures given at Columbia University. Topics dealt with are—the Normal Child, the Precocious Child, Mental Retardation, Amentia, Mental Testing, etc. Each chapter is complete, with references to the literature, occasional pictures, charts and illustrative case histories. Much of the material is from other works on allied subjects. The book can be highly recommended as a thorough, well written text. It should prove useful to any physician who deals with children.